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Wool	373 S
Butter	374 S
Cheese	375 S
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Stocks of cereals, potatoes, cotton, etc.	379 S
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Wheat	473 S	Latest information on trade.	510 S
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Total wheat and flour . . .	475 S	Stocks of cereals, potatoes,	
Rye	476 S	cotton, etc.	489 S
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AGRICULTURAL ECONOMICS AND SOCIOLOGY

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CHANGES IN THE EXPORT OF AGRICULTURAL PRODUCTS FROM YUGOSLAVIA

SUMMARY:— I. *Agricultural exports from Yugoslavia*:— Changes in quantity. — Changes in value. — Principal countries of destination. — The principal agricultural exports. — II. *Causes of changes in Yugoslavian agricultural exports*:— The agrarian reform and the post-war period. — The world crisis and government intervention. — Development of a new trend of agricultural production. — Future prospects for Yugoslavian agricultural exports.

Approximately 81 per cent. of the population of Yugoslavia (some 15,600,000) are engaged in farming, while agricultural products averaged from 48 to 52 per cent. of total exports during the last twenty years. These figures show clearly that this essentially agricultural country is largely influenced in its economic and social evolution by the condition and development of its agriculture and, consequently, its agricultural exports.

During the last ten years trade between Yugoslavia and other countries has undergone a complete change both in quantity and quality, more especially as regards agricultural products. This transformation, due partly to agricultural and partly to other developments, has had both material and social repercussions (1).

The most notable change was in regard to countries of destination. Yugoslavian exports were still limited to central European markets but went to different countries. The causes of this evolution cannot be fully dealt with in the present article, but in order to give some idea of the changes that have taken place in the export of agricultural products from Yugoslavia it is only necessary to mention the *facts*, with a brief reference to the *causes* which have contributed to this change.

(1) For changes outside the sphere of agricultural production see, by the same writer: "The industrialization of agricultural countries of south-eastern Europe" in the *International Economic Review*, Brussels, July 1938, and "Triebkräfte wirtschaftlicher Strukturänderungen in Jugoslawien", *Weltwirtschaftliches Archiv*, Kiel, September 1938.

I. — Agricultural exports from Yugoslavia.

Changes in quantity.

The agricultural products of Yugoslavia vary considerably in quality and quantity from year to year. Wheat crops, for instance, vary between 11 and 37 million quintals and maize between 18 and 51 million quintals, while the total area under crops gradually increases in proportion to the increase in population.

Even in periods of poor harvests, however, Yugoslavia has never ceased to export wheat and maize. The export of other cereals is so unimportant that it can be disregarded. Even after the disastrous years of 1921, 1923 and 1927, when wheat production fell to 12, 16.2 and 15.4 million quintals respectively, and maize production to 18.1, 20.6 and 21.0 million quintals respectively, Yugoslavia's agricultural exports, consisting up to two-thirds of cereals, were very considerable.

Although Yugoslavia constantly exports cereals and other agricultural products the volume varies between very wide limits. During the years 1925-26 exports reached the figure of 14 million quintals per annum. After the scanty crops of 1937 they fell abruptly but rose again to 9 million quintals. After 1932, having fallen to 4,900,000 quintals they again rose to 9 million quintals. It is not surprising that an agricultural country, whose economic success depends to so largely upon natural factors, should have violent fluctuations; the remarkable fact is that the exports are never entirely suspended, as is frequently the case in other countries.

The quantities of various classes of exports each year are definitely interdependent. In one case only was this rule broken, viz., in the year 1935-36, when the export of animal products declined while that of vegetable products and of the products of agricultural industries rose. This was entirely due to the fact that sanctions were then being applied against Italy and may be regarded as the exception that proves the rule. Briefly, the flow of agricultural exports varies in volume between extremely wide limits but never entirely ceases: it shows on the whole a tendency to increase.

Changes in value.

The position is not quite so simple and clear when it comes to considering the changes that have occurred in the *value* of exports of agricultural products. Such changes depend not only on Yugoslavian production but also largely on prices on the world market, which in their turn are affected by supply and demand. Partial independence of prices on the world market was possible for Yugoslavia only after trade with Germany had been regulated by the treaty of May 1 1934, which came into force on June 1 1934 and was supplemented by the additional agreement of May 1 1936. Previous treaties of the kind had been that with Italy of July 14 1924 supplemented with numerous additions in 1932, 1934, 1936 and 1937, and that with Austria (treaty of March

1 1932) and with Czechoslovakia (November 1928, supplemented December 10 1936). This independence could however be achieved only in respect of quotas and groups of commodities as fixed by these treaties, especially cereals, livestock and livestock products, eggs, poultry, fish, certain fruits, etc. Prices of all other exported agricultural products came under the direct influence of world market prices which were nearly always below production costs of Yugoslavian products. This was the case for alcohol, sugar, flour, chilled meat, butter, cheese (apart from "Kačkavalj" cheese which is not made in Western Europe), fats, beans, fruit, hops, hemp, tobacco, etc. Under the pressure of world market prices, it has been quite impossible to export certain products, such as alcohol, sugar and flour (this last up to 1937), and the other commodities just enumerated could be exported only to a limited extent.

The much greater fluctuations in the *value* than in the *volume* of the agricultural products exported from Yugoslavia are thus due to two factors: the price situation on the world market, in connection with which account must be taken of the considerable fluctuations in the value of the dinar at the period of inflation (1920-22) and of the deflation which followed up to 1925 and subsequently up to the stabilisation of the currency in 1931, and secondly, variations in the volume of the various exports, which in effect depend on variations in harvests.

The value of the exports of agricultural products was thus at its lowest level in 1920-21, amounting to some 800 million dinars, and at its highest level in 1925-26, viz., 5,960 million dinars; thus in the most favourable year the value was seven times what it was in the least favourable. It may be noted in passing that in 1924 the aggregate value of all Yugoslavian exports reached the highest figure from the creation of the State to 1937, viz., 9,538 million dinars and that in 1925 total exports were still worth 8,904 million dinars and were maintained at a level of about 6 to 7 milliards of dinars until, in 1933, the effects of the great depression brought exports down to a value of 3 milliards of dinars, to rise only gradually to 6,200,000,000 dinars in 1937.

Principal countries of destination.

In world trade Yugoslavian exports have no special importance, as they represents barely 0.5 per cent. of the total. They cannot therefore exercise any influence on the world market and in consequence market conditions simply have to be accepted.

On the other hand, in Central Europe (understanding by this term Germany, Italy, Czechoslovakia, Poland and formerly also Austria) Yugoslavia is a factor which cannot be overlooked. With Hungary, Romania, Bulgaria, Greece and Turkey, Yugoslavia however forms a community of the "agrarian States of South Eastern Europe", which resemble each other in their economic and social structure; within this group trade in agricultural products is only considerable between Greece and the other Balkan States; between the other members of this group both the volume and value of such trade are insignificant.

The whole foreign trade of Yugoslavia gravitates towards Central Europe, about 60 per cent. of the value of its exports going to Central European countries and 60 per cent. of its imports coming thence. Only in the last few years has a change in the direction of foreign trade been to some small extent noticeable with the development of exports to the Levant and to other coasts of the Mediterranean (Algeria, Morocco, Tunisia, Malta, Egypt, Palestine). This trend of economic expansion may well continue, and so gradually free Yugoslavia from its economic dependence on Western Europe. For the time being no great attention is paid to such a strengthening of trade relations with the Near East, but it would be a mistake to ignore the possibility (1).

Principal agricultural exports from Yugoslavia into Germany, in 1937.

(Total value 1,361 million dinars)

Wheat	278.9	millions of dinars
Maize	123.0	" "
Beans	8.5	" "
Grapes	4.7	" "
Apples	11.0	" "
Plums (fresh and dried)	11.5	" "
Hemp	49.8	" "
Tobacco	7.1	" "
Oilseeds	1.0	" "
Horses	4.7	" "
Cattle	13.3	" "
Pigs	40.6	" "
Poultry (live and killed)	50.6	" "
Fresh pork	59.7	" "
Pig-fat	86.5	" "
Eggs	50.8	" "
Feathers	49.8	" "
Hides and skins	20.3	" "
Other agricultural products	49.7	" "

Total . . . 911.7 million dinars, or 70 per cent. of the value of total exports.

Up to the time of the application of sanctions against Italy, in 1935, Italy, taking 20 per cent. of Yugoslavian total exports, was constantly the principal market for Yugoslavian products, especially agricultural products.

(1) See by the same author: "Möglichkeiten der Umorientierung des jugoslawischen Aussenhandels" *Weltwirtschaftliches Archiv*, Bd. 39 Heft. 3, May 1934 Kiel.

In 1934 Austria came next with 16 per cent., Germany with 15 and Czechoslovakia with 11. In 1936 exports to Italy dropped to 3.1 per cent. only, while exports to Germany rose to 23.7, to Austria to 14.6 and to Czechoslovakia to 12.3 per cent. (1).

This change in the direction of exports due to marketing conditions continues: in the first half of 1938 the share of Germany (including Austria) was 35.8 per cent., that of Czechoslovakia was 9.59 per cent. and that of Italy 7.18 per cent. of the total exports of Yugoslavia. It seems likely that Germany will retain the first place which she holds in the foreign trade of Yugoslavia; this must be emphasized as one of the most important changes which have occurred in the export of agricultural products in particular. The accompanying figures show the extent to which agricultural products predominate in exports to Germany.

The principal agricultural exports.

In addition to this trend movement in the exports of agricultural products from Yugoslavia, changes have occurred in the quantity and value and also in the destination of the various products exported. A short summary of these modifications will here be given.

Cereals. — All the export surpluses of the two principal cereals grown in Yugoslavia, wheat and maize, find markets in Central Europe. The wheat might be marketed entirely in the Mediterranean basin—which would be impossible for maize—but could be sold only at world market prices which, as already stated, are below production costs in Yugoslavia. There has been a perceptible change in the markets for Yugoslavian wheat in the course of the last ten years. While in 1928 out of 162,278 metric tons, 52,101 tons were sent to Austria, 61,686 to Czechoslovakia, 21,668 to Hungary and 22,016 to Rumania, these States almost entirely disappeared from the list of buyers during the period up to 1937 (only Austria still bought 3,319 tons). In their place, in 1937, out of a total export of 318,035 metric tons, 156,796 tons were directed to Germany, 134,162 tons to France, 8,000 to Italy and 5,000 tons to the Netherlands.

The explanation of this contrast is that in the statistics compiled account is now taken of the fact that cereals sent to Hungary and to Rumania do not remain in these countries but are immediately re-exported to the consuming regions of

(1) Among the Yugoslavian sources which have supplied the figures given, may be mentioned: (a) Statistika spoljne trgovine kralj Jugoslavije (Statistics of the external trade of the Kingdom of Yugoslavia). Years from 1926; (b) Poljoprivedna godisnja statistika (*Annual agricultural statistics* published by the Ministry of Agriculture from 1920; (c) Statisticki godisnjak kralj Jugoslavije (*Statistical Yearbook of the Kingdom of Yugoslavia*) from 1930; (d) Spoljna trgovina (*External Trade, Report of the Office for the encouragement of external trade*, only for years 1931 to 1933 inclusive.

Western Europe, Braila and Budapest being regarded merely as entrepôts. The large quantity purchased by France was temporary only. As normally France is in a position to cover fully her wheat requirements, and at times even has surpluses, it was unlikely that this marketing outlet would be permanently available for Yugoslavia. This was fully confirmed in the following year. For Germany the situation is different, as, especially since the annexation of the Austrian and Sudeten regions which cannot meet their own food requirements, Germany will have to supplement her own production of wheat, seeing that within the limits of the production campaign and the Four Years' Plan there is neither the possibility nor the intention of completely covering requirements. In addition, there is no German wheat suitable for the manufacture of the finest flours (OOG), as the hard, brittle grain of Yugoslavian wheat, like that of Manitoba wheat, is the product of a special climate not found in Germany. On this account special attention is paid in Yugoslavia to the production of hard wheat, with high gluten content. In place of the former numerous indigenous varieties and of the Prolific variety which used often to be exported and which has starchy grains relatively poor in gluten, distribution is now made so far as possible of seeds of selected early ripening varieties (Bankut, Sekacs and Dakota wheats), of good storage quality, and resistant to parasitic diseases. By this means the quality of wheat for export has been noticeably improved.

Some account will be given later of the measures taken by the Government for the standardization and grading of wheats for export and of the plans for further development of these measures. Here it is enough to say that constant attention is paid to the development and safeguarding of markets for Yugoslavian wheat surpluses at fair prices, and that Yugoslavia is determined in all circumstances to keep the Western European market.

Almost the same may be said of maize, three varieties of which are exported: the late ripening horsetooth maize, the ordinary Yugoslavian round-grained maize and the early Italian varieties (Cinquantin, Pignoletto, etc.). Wheat has however become largely independent of prices on the world market, as a result of agreements between Yugoslavia and Germany—which largely protects its own production of wheat by means of market regulation and by duties and allows Yugoslavia a share in this protection. This has not been the case with maize, and in consequence there is a much wider range of markets for maize, for nearly all the European countries purchase Yugoslavian maize. Whereas formerly (in 1927) out of the total quantity of 197,689 metric tons with a value of 337,200,000 dinars, Czechoslovakia took 121,357 tons, Austria 39,352 tons and Hungary 24,279 tons, in 1937 out of a total quantity of 725,196 tons with a value of 698,900,000 dinars Austria imported 239,411 tons, Denmark 167,010, Germany 123,054, Italy 22,727, Greece 19,086, the Netherlands 46,905, Morocco 16,387 and the United Kingdom 11,532 tons. This expansion of exports was especially due to the fact that, in 1936-37, Yugoslavia had a record harvest and was in a position, owing to the shrinkage of the supplies from the overseas countries, to obtain good prices and to secure markets which before had been inaccessible.

Leguminous crops. — The export of beans from Yugoslavia is of considerable importance. In 1928 exports amounted to 9,772 metric tons with a value of 55,000,000 dinars, of which exports to Greece were worth 25.8 million dinars and those to Italy 21.1 million dinars. In 1937 exports were 44,491 metric tons of a value of 107.1 million dinars. The leading buyers of this increased export were again Greece (34.6 million dinars) and Italy (21.1 million dinars) but also the United States (8.6 million dinars), Germany (8.4 million dinars), France (6.4), Brazil (1.4), Argentina (3.5), also Nicaragua, Guatemala and other South American States with smaller quantities. It is undoubtedly due to the exceptional quality of the Yugoslavian — small grained — beans that the export of this product has acquired a still greater importance than formerly.

Fruit. — The export of fruit is an important item in the trade of Yugoslavia, but the value of this export varies between even wider limits than in the case of cereals. It is a matter of long experience that the harvests of the most important and widely distributed fruit crop in Yugoslavia, *viz.* plums, are found to be as follows in the course of every seven years: one superabundant, two plentiful, two good and two poor; if the poor harvests are due to night frosts, it often happens that the entire crop is lost and in those years the regions affected have no plums at all. Fluctuations consequently occur in the quantity and value of fruit exports: in 1928 a total of 67,187 metric tons of fruit were exported with a value of 250.8 million dinars, while in 1937 scarcely half the quantity was exported, or 35,537 metric tons with a value of 107.8 million dinars. As already indicated, plums form the greater part of fruit exports from Yugoslavia, and in 1928 out of the total fruit exports 47,788 metric tons consisted of plums to the value of 175 million dinars, while the export of apples was 11,220 tons with a value of 31.2 million dinars, that of walnuts, 3,188 metric tons with a value of 23.9 million dinars and that of bitter cherries, from which the famous maraschino liqueur is made, 585 metric tons with a value of 9.7 million dinars. In 1937 when, not in all, but in the most important plum-growing districts, a late frost occurred, which destroyed the greater proportion of plum and apple blossom, the export of plums fell to 21,862 metric tons with a value of 63.9 million dinars, of apples to 7,400 metric tons worth 16.4 million dinars, of walnuts to 2,413 metric tons worth 10.1 million dinars and of maraschino cherries to 400 tons for a value of 1.8 million dinars. The year 1937 was far from being the worst fruit year, but these figures show the great fluctuations in Yugoslavian fruit exports.

Exports of grapes are much more regular, the average of the last few years amounting to some 2,800 metric tons with a value of about 9 million dinars, at first mostly to Austria and Czechoslovakia, now mainly to Germany. For apples the change in destination of exports was the same as for grapes, whereas for dried plums Germany had been the principal market before. In the last few years Poland and Denmark also became purchasers, while Czechoslovakia has bought almost the same quantities every year. Walnuts were formerly sent mainly to Austria, although Germany, Hungary and the United States bought up to about 4 million dinars each. Exports to Hungary and to the United States

have now almost entirely ceased, and Germany and Austria remain the principal customers. The greater part of the maraschino cherries went to the United States in the dried state, the only condition in which transport is possible.

Industrial crops. — Tobacco and hemp are now the only industrial crops exported in any considerable quantities from Yugoslavia. Speaking generally, there is a steady increase in the growing of industrial crops in Yugoslavia; the area under cultivation was 118,519 ha. in 1926 and 168,231 ha. in 1937. This increase however is not reflected in exports, for their value has fallen from 432.6 million dinars in 1928 to 399.5 million in 1937. This is due to the fact that although, owing to Government measures, to be later examined, the production of oilseeds has definitely increased — 6,095 ha. were under cultivation in 1926 and 39,586 ha. in 1937 — the seeds obtained have been utilized in Yugoslavia itself for the manufacture of oils, instead of being exported. Only one kind of oilseed has been exported of late years, the soybean. Several thousand tons of these were exported during the last few months of 1938, almost exclusively to Germany, which is giving systematic encouragement to this cultivation in the Balkans with excellent results in Bulgaria, good in Romania but up to 1938 not very satisfactory in Yugoslavia. In 1938 a larger number of growers became interested in soybean growing. Their results were so satisfactory that the prospects of the extension of this valuable crop have decidedly improved. As Germany guarantees in advance the purchase price for a series of years and at a level ensuring a certain profit even for crops which are below the average anticipated, soya exports may be expected to increase in the future.

In the former Southern Serbia the *tobacco* crop is of special importance. From pre-war times the tobaccos of these districts, known as "Macedonia tobaccos", were as well known and appreciated as those of Herzegovina. As the sale of tobacco is a State monopoly in Yugoslavia, production and export are both under State control. In consequence the extent of the tobacco area depends always on the degree to which the Monopoly has been able to place the surplus production on the foreign market. According to the market situation, the area planted with tobacco has varied between the extremes of 21,264 ha. (in 1931) and 6,418 ha. (in 1934). On the other hand, the value of tobacco exports was 46,100,000 dinars in 1925 and 1,095,000 dinars in 1932. For the year 1937 the volume exported was 3,632 tons to a value of 109,100,000 dinars, of which much the greater proportion (to a value of 102,100,000 dinars) was bought by Czechoslovakia. It is stated that Germany has announced her readiness to purchase in future all tobacco in leaf which Yugoslavia has for export, and hence the prospects for the export of this crop are good.

This assured marketing outlet is the more welcome, as it is in the relatively over-populated districts, *i.e.*, in the Southern Karst region, that tobacco does best and is of value to the poverty stricken population as the product most sure of a market and bringing in the highest wages for the labour required, of which there is always a surplus available.

The export of *hemp* is of increasing importance to Yugoslavia. Originally the quality of Yugoslavian hemp was much inferior to that of Italian hemp. By

importing seed from Italy and by improving the retting equipment and the subsequent treatment of the hemp up to the semi-manufactured stage (stripped hemp, etc.) much has been done to enable Yugoslavian hemp to compete effectively on the market. In consequence the volume and value of hemp exports have considerably increased: whereas in 1928 not more than 8,523 metric tons were exported to a value of 49.9 million dinars, the quantity in 1937 rose to 20,312 tons for a value of 162.2 million dinars. In 1928 the leading buyers of nearly equal quantities in each case were Austria, Hungary and Germany. In 1937 a decided change had come about: Germany now stands at the head of the list of purchasers of hemp, to a value of 49.8 million dinars. The United Kingdom comes next, as a new and important customer, with 37.9 million dinars, then Austria with 25.3 million dinars, Czechoslovakia with 12,100,000 dinars and Hungary with 7.2 million dinars. It appears that England is anxious to attract hemp exports from Yugoslavia, a prospect offering advantages to exporters, as England pays in currency. The relatively low prices on the world market, however, give rise to difficulties in hemp-growing in Yugoslavia itself, and the crop is no longer so remunerative as it was formerly, when the net returns were considerably higher than those from cereals, and especially from wheat growing. Since, as a result of advantageous trade agreements, it has proved possible to maintain the price of wheat above cost of production, hemp-growing, which is liable to great variations in yield and in quality of crop, offers less advantage than formerly, especially as it requires much more labour than wheat, and this consideration is of great weight for the farms obliged to employ hired labour. In consequence, in spite of the prospects of improved marketing, Yugoslavian hemp export has not a completely assured future, and is likely to experience considerable fluctuations.

Livestock products. --- The second group of Yugoslavian agricultural exports is that of livestock products. With these products also considerable changes have taken place during the last ten years, both in the volume and value of exports and also in countries of destination. It cannot be maintained that these changes are due to changes in the structure of Yugoslavian agriculture; they were actually the result of the crisis in the years 1930-34. Nevertheless, the quality of exports of products of animal origin, ranging from live animals to the products of the processing of meat, to milk, fats, eggs, feathers, etc., have been considerably improved since the founding of the new State. The results obtained in the improvement of breeds of horses, cattle and pigs have been especially noticeable, since efforts in this direction could be based on earlier successes. The great landowners in the northern regions of Yugoslavia had many exceptional breeds, some of which were renowned beyond the frontiers of the Austro-Hungarian monarchy. The Lipizzan horses, the red-brown spotted cattle (Simmental), the fat Mangalicza pigs and the merino, Electoral and Rambouillet sheep were all represented here by well known pedigree stock. It is much to be regretted that when the agrarian reform was being carried out the best breeds were destroyed indiscriminately without regard to the future and that it has become necessary to build them up again on what was left of the former stock.

* *Ec. i Engl.*

Comparing the development of Yugoslavian exports of animal with vegetal products, it is observed that the trends of volume and value in each case are nearly parallel although the fluctuations in the case of vegetal product exports are less marked, as stock farming cannot be immediately adjusted to the variations in crop returns. This adaptation is most readily made for pig breeding the extent of which depends in Yugoslavia on the supplies and the price of maize, which is the principal feed for fattening pigs. Sheep numbers are also reduced or raised by owners of flocks according to the production of hay and straw for winter feeding. Any change in cattle numbers is made less easy by the organization of the farm, the crop rotation and the requirements in manure, and a change is still more difficult in the case of farm horses. This fact explains the much wider variations in pig and sheep exports, as compared with those of cattle and horses, and accordingly the value of the exports of animal products remains at a more stable level than that of the exports of crop products. In any case, once the crisis of 1930-34 was over, there was a steady rise in value from 1933-34 and in volume from 1935-36. These latter years also mark the beginning of an improvement in the prices of animal and vegetal products on the home markets. After the price fall of 1931-32 and the very low price level on the world market in 1933-34, prices gradually recovered and rose above the level of prices on the world markets, rapidly in the case of crop products and somewhat more slowly for livestock products.

Horses exported from Yugoslavia may be classed in two groups: light draught horses (Lipizzan, Nonius, Anglo-Norman and English semi-light horses) and heavy horses of Noric or Belgian origin. The former are purchased by foreign countries mainly for army purposes, the latter mostly for slaughtering. Of the total exports of horses, amounting in 1928 to 38,184 head for a value of 8.94 million dinars, much the larger proportion was sent to Italy (28.8 million dinars) and to Greece (25.7 million dinars). In 1937 however out of the 25,913 horses exported to a value of 63.8 million dinars, the value of exports to Italy and Greece was only 5 million in each case. On the other hand, Austria imported to a value of 32 million dinars, Germany 4.7, Switzerland 5.6 and Hungary 2.4 million dinars. More than half the horses exported to Austria and to Hungary were intended for slaughter.

Exports of *cattle* were at one time (1928) mainly composed of oxen (59,758 head), the number of bulls (17,176) and cows (17,687) and heifers and bullocks (17,389), with a total value of 289.8 million dinars, being smaller. The largest proportion, to a value of 126 million dinars, went to Italy, while Austria came next with 108 million dinars. Greece imported cattle to a value of 44.6 million dinars and, what is especially remarkable, Malta to a value of 7.2 million. In 1937 the composition of the cattle exports remained nearly the same, but the total number fell to 80,481 head and the value to 169.8 million dinars. Among the importing countries Italy, in spite of sanctions, again heads the list (90.2 million dinars); next come Germany and Switzerland with 13 million each, Austria with 11.5, Greece with 7.5 and finally Malta with 9.3 million dinars. Stress is again laid on this latter country because it is no longer the only country in the Mediterranean basin to have increased its imports

of Yugoslavian cattle. Besides Malta, Libya has imported to a value of 1.5 million dinars, Egypt 2.1 and Palestine 14.8, in all a value of 28.4 million dinars. It has already been noted that Yugoslavia shows a tendency to re-direct her foreign trade from the West towards the East. The instance just given illustrates clearly enough how far this tendency might be pushed if pursued systematically.

Greece is still the only country purchasing *sheep*, in spite of many efforts to capture the French market; the value of Yugoslavian sheep imported into Greece during the year 1937 amounted to 35.7 as compared with 116.6 million dinars in 1928.

As in the past, Austria still provides the principal market for *pigs*. Her imports from Yugoslavia for 1928 of 207 million dinars were almost the same as the imports of 210.8 million in 1937. Next in order comes Czechoslovakia, whose imports for the years 1928 and 1937 were valued at respectively 100.4 million and 142.8 million dinars. Italian imports of live pigs from Yugoslavia rose during the this period from 9.5 to 28.5 million dinars and those of Germany from 0.7 to 40.6 million dinars. In addition to the importation of pigs, Austria and Italy imported from Yugoslavia in 1928 pigmeat to the value of 46.0 million and 16.5 million dinars respectively, but in 1937 Austria's imports had fallen in value to 21.3 million dinars while Italy scarcely figured among the purchasers. Germany, on the other hand, imported pigmeat to the value of 59.7 million dinars. There should be an appreciable increase in this figure owing to the latest negotiations (October-November 1938) with Germany and Italy, but this will probably take the form of chilled—not frozen—pork which, thus preserved, is easily transportable to the great centres within reasonable distance, where it is consumed. As the temperature of chilled meat is between 2° and 4° C it is not frozen and may be regarded in all respects as fresh meat. Modern methods of refrigeration make it possible to transport meat at that temperature from Yugoslavia to Germany, as far as the Main and the Danube, and to Italy, as far as Milan, without undue transport charges. It can also be transported to Berlin, Frankfort-on-Main, Paris and Turin at a cost which certainly enables competition with overseas frozen meat. It is therefore reasonable to anticipate that in the future this method of transporting and utilizing Yugoslavian meat will play an important part in the export trade not only in meat but also in poultry, game, eggs, fruit and similar products (1).

Eggs and *poultry* are extremely important items in Yugoslavian exports since they represent the chief source of income for small peasant farmers: in some cases they are the only link with the market and the only means of obtaining ready money for working expenses. It may be confidently asserted that the price of eggs on the world market is as important for about half the Yugoslavian peasant farmers as the price of wheat and maize is for the other half.

(1) As regards the position and prospects of the trade in meat seen the monograph "The International Trade in Meat" published by the *International Institute of Agriculture*, Rome, 1936.

This is readily understandable, as these small farmers are obliged to supplement their own production by purchases and need ready money to buy the food-stuffs which their farms do not supply. The stagnation on the poultry and eggs market, which was partly due to the general crisis and partly to the constantly varying clearing arrangements, had disastrous results for the poor and very poor small farmers: the price of eggs over this period fell from one dinar (the normal price per egg) to a fifth of that sum and then lower still. These farmers have not yet fully recovered, although in 1938 egg prices dropped below a dinar only during the summer, which is the season of largest production of eggs.

Certain changes have occurred in the course of these years in the destination of poultry and egg exports from Yugoslavia: in 1928 a total of 8,469 metric tons with a value of 131.8 million dinars and in 1937 a total of 14,130 metric tons with a value of 170.8 million dinars were exported to the following countries:

	Austria		Germany		Italy		Switzerland		England	
	Tons	Million dinars	Tons	Million dinars	Tons	Million dinars	Tons	Million dinars	Tons	Million dinars
1928	3,377	51.1	1,334	19.9	2,233	35.4	802	14.2	316	4.8
1937	1,908	21.7	4,739	55.1	3,856	50.0	1,378	19.7	2,351	29.4

The positions of Austria and Germany have been reversed; whereas formerly Austria was by far the largest buyer of poultry and especially of young poultry, it is now Germany which imports fowls and young poultry in nearly equal quantities. It may be assumed that the ratio between the two kinds of poultry, killed or alive, will remain the same after the union of the two countries. It is of interest to observe that England now buys very large numbers of turkeys; out of 2,351 tons with a value of 29.4 million dinars as shown in the poultry statistics, 2,179 tons with a value of 27 million dinars consisted of turkeys (1937), while in 1928 their value was only 4.8 million dinars. There is a very marked increase in sales to Italy, in spite of the difficulties caused by the veterinary control and in spite of sanctions. There is also an increase for Switzerland.

In 1928 exports of eggs were 24,524 tons with a value of 467.9 million dinars. Unfortunately exports were not maintained at this high level. In 1937 they fell to 12,264 tons, or one half of their former volume and to a value of 117.9 million dinars, or one fourth of their former value. Thus there has not only been a reduction in quantity but also a price fall of some 50 per cent., which is much to be regretted in the interests of the Yugoslavian small farmers who have a hard struggle for their livelihood as it is. This price fall is mainly due to the German regulation of the market in respect of grading of

eggs by size and weight, as only in certain districts do Yugoslavian poultry-breeders keep birds for breeding purposes, the eggs of which meet German requirement. The very large majority of eggs weigh less than from 55 to 60 grammes and are not suitable for export. Attempts have been made to remedy this by removing the contents of eggs that are too small from the shells and exporting them in jars. In this way 664 tons were already exported in 1937 with a value of 7.1 million tons and during the first six months of 1938 there was an export of 1,862 tons with a value of 22.2 million dinars. It may be expected that the technical improvements which are being introduced into this method of handling eggs will make it possible to export much larger quantities (1). In addition to Germany, which in 1937 imported eggs in the shell to the value of 43.4 million dinars and eggs in jars 7.1 millions, England imported to a value of 12.9 million and Switzerland 28.5 million dinars.

During the first six months of 1938 there was considerable expansion of imports of Yugoslavian eggs into England, eggs in shell being imported over that short time to the value of 18.5 million dinars and eggs in jars to 9.9 million. In view of the keen interest shown by England in the expansion of trade relations with the countries of Southern Europe, a further increase in this export to England may be anticipated, particularly as eggs are one of the few farm products able to meet competition at world prices.

Among other livestock products pig fat, of which only very small quantities (40 tons) were exported in 1928, has become an important export item. In 1937 exports totalled 8,333 tons with a value of 122.5 million dinars, mainly to German (74.1 million) and to Czechoslovakia (24.4 million), but also to England (14.9 million dinars). A considerable increase in the export of bacon has also occurred. The quality of this article of diet, which is very rich in calories, is excellent in Yugoslavia and is increasingly in demand abroad. Many efforts have been made to obtain a market in England for exports of bacon, but so far without success, and the same is true as regards export of hams, sausages and other preserved meats in any large quantities, although the required quality undoubtedly is to be found in Yugoslavia since there are plenty of fat and lean pigs. The total value of exports of these products in 1937 was 41 millions dinars as compared with 14.2 million in 1928. In view of existing possibilities this amount must be considered too low; the encouragement of the *meat industry* remains an urgent necessity.

Among articles of export of *agricultural industries* may be enumerated wheat flour, bran and fodder meal, cheese (Kackalj), olive oil and wine. Considerations of space however make a detailed treatment impracticable.

Among other agricultural products, exports of hides and skins of cattle, calves, sheep and goats are on the increase, both in volume and in value. In 1928 exports amounted to 4,207 tons valued at 107.2 million dinars, while in 1937 exports were 4,425 tons with a value of 137.6 million dinars. Generally speaking, exports of cattle hides are rapidly declining (in 1937 the value was only 3.8 million dinars) while those of skins of calves, sheep, lambs and goats are steadily increasing. The principal buyers are Czechoslovakia (for the large glove industry), the United States, the Netherlands, Hungary, Germany and Italy.

* * *

During the first nine months of 1938 there was no noticeable change in the proportions of Yugoslavian exports, nor in the countries of destination, but a considerable decrease in volume and value may be observed. The value of the exports of agricultural products in millions of dinars during the months from January to September (inclusive) were as follows:

	Jan.-Sept. 1938	Jan.-Sept. 1937
	million dinars	
Wheat	110.0	515.0
Cattle	56.0	126.3
Pigs	245.7	292.7
Hides and skins	76.6	115.4
Hemp	105.4	142.4

The reasons for this decline, in spite of production remaining at the same level, will be examined in the following pages.

II. — Causes of changes in Yugoslavian agricultural exports.

The agrarian reform and post-war period.

In the foregoing statement the year 1928 has throughout been compared with the following years, the reason being that 1928 marks the beginning of the decade which displayed certain definite trends and for which relatively trustworthy statistics on exports are available.

Since its foundation on December 1, 1918, the Kingdom of the Serbs, Croats and Slovenes had, like all the victor States, to pass through all the post-war phases. Conditions differed only in this respect, *viz.*, that Serbia was completely devastated, stripped of all means of production, its few industries ruined, railways and roads destroyed and livestock, seeds and all farm equipment disappeared. The former territories of the Austro-Hungarian monarchy which were grouped to form the joint Kingdom had suffered less or even not at all from the effects of war, but their export surpluses which before had gone to the monarchy were now directed to Serbia and in consequence there was a complete change in the former trade channels of these agricultural products.

In the following years, during which Serbia recovered with the surprising rapidity with which other agricultural countries (1) also recovered, all the

(1) For Bulgaria see: DANAILOW G. T. *Les effets de la guerre en Bulgarie*. Published by the Dotation Carnegie Paris.

agricultural products which the new Kingdom could in any way dispense with began to be exported increasingly to many countries of Western Europe. Germany at that time took only a very small proportion of these exports. Exporting became so remunerative and the risk of pushing exports too far become so pressing that the Government introduced export duties: for example, in 1925 the duty on wheat for export was 15.60 dinars per 100 kg., on cattle 180 dinars per head, on pigs 360 dinars up to 70 kg. of live weight and 192 dinars for a higher weight, on cattle hides 960 dinars per 100 kg., on wool 760 dinars per 100 kg. These duties were shortly afterwards abolished as they impeded any export (1). The inflation which soon followed and the subsequent deflation had a very diverse influence on foreign trade of Yugoslavia in general and on that in agricultural products in particular.

The fluctuations in the monetary unit, *i.e.*, the paper dinar which was not covered by gold, scarcely permit of comparison between the volume of exports of these years with that of the following years, and in respect of value excludes comparison altogether. It is only since 1925, the year in which the stabilisation of the dinar on a gold basis was seriously attempted, being later established by law in 1931, that the figures relating to the value of Yugoslavian imports and exports can be freely compared.

Besides these changes in monetary policy, profound changes have occurred in the structure of agriculture within Yugoslavia.

On February 25 1919, the Regent (afterwards King Alexander I) issued a decree-law containing temporary measures for *agrarian reform*. These measures remained in force for ten years and were not definitely superseded until the years 1931-34. In his plan for agrarian reform the Regent was prompted by a spirit of humanity and political wisdom but, unfortunately, when it was carried out, the large estates were not used to benefit the ordinary family farmer – the real backbone of every nation – but were divided into innumerable dwarf holdings. So limited was the area of these holdings that even the largest were inadequate to support a family; obviously, therefore, they could not fulfil the functions of the average family farm, still less of the former large estates. Hence there was an appreciable fall in the export of agricultural products, which had previously been obtained from the large estates and were of excellent quality. The actual figures are given in the following table:

Exports of Cattle and Pigs.

(1921-1925)

	Number	
	Cattle	Pigs
1921	133,535	476,293
1922	128,362	301,268
1923	235,979	293,497
1924	186,903	219,335
1925	131,456	201,282

(1) See DRAXLER, B. *Die Landwirtschaftskrise im östlichen Donaauraum*. Petrovgrad (Yugoslavia), 1936.

Exports increased when the large estates were being broken up and their livestock had to be disposed of. There was subsequently a rapid fall both in quantity and quality; indeed, as regards the latter, the former high standard has never been regained.

Exports of agricultural products were similarly affected by the agrarian reform. Although there was an appreciable increase during the years 1925-26 owing to exceptionally good harvests, during the following years the value of exports declined steadily although the harvest yields over the period were nearly uniform. This fall in value was due to the fact that the selected and standardized products of the large estates were superseded on the market by ordinary peasant production which could not successfully compete with foreign cereals in Central Europe (1).

The world crisis and government intervention.

The general fall in cereal prices on the world market, which began in 1929 and was the starting-point of the world economic crisis, added to the difficulties brought about by agrarian reform in the disposal of agricultural products. So serious were these difficulties, especially in regard to wheat, that they finally became intolerable for the peasantry, which represents the greater part of the Yugoslavian population. Prices fell from about 400 to 70-80 dinars per quintal. Moreover the proportion of his produce required from the family farmer for taxes amounted to four or five times that of pre-reform days. The price-relationship between agricultural and industrial products changed to such an extent that the latter were beyond the means of the peasantry. The purchasing power of whole masses of the population fell almost to zero and a situation arose which was intolerable both economically and politically. In view of this state of affairs the Government embarked upon a course of action calculated to have a decisive effect on the further evolution of agriculture in Yugoslavia, as also on the export of agricultural products. It intervened officially in the formation of prices, first of *wheat* and later of other agricultural products, thus introducing a new element into the system of unregulated supply and demand which had existed till then (2). It was also necessary to take action for the suppression of usury, which always gains ground in the country in times of crisis, and of intermediary trading, which lowers the price to the detriment of producers. In the hope of achieving all these objects the Government introduced the law of July 10, 1931, on the *internal wheat trade*, and that of June 27, 1931, on the *monopoly of wheat exports*.

(1) For details as to agrarian reform in Yugoslavia see the article by the present writer: "Agrarian Reform in Yugoslavia" in the *Monthly Bulletin of Agricultural Economics and Sociology*, XXth Year, 1934, Nos. 1-3 International Institute of Agriculture, Rome; also „*Die sozial-ökonomische Struktur der jugoslawischen Landwirtschaft* " Berlin, 1937.

(2) For further details as to the regulation of wheat-prices in Yugoslavia see V. PRYOR's study: „*Die Weizenregulierung in Jugoslawien* ". *Weltwirtschaftliches Archiv*. 45 Bd., Heft 3, Kiel, 1937.

These enactments were preceded by the formation of a Central Board for the Export of agricultural products (in the first place only wheat); this Board was set up under the name of "Prizad" as a privileged joint-stock company, the State holding 81 per cent. of the shares, and with an initial capital of 15,000,00 dinars (Law of April 15 1930). The function of the "Prizad" was at first to effect price regulation on the home market by purchase of wheat and wheat sales abroad, and to cut out as far as possible the large foreign firms which had up to then been exercising a semi-monopoly of export business. The small initial capital and faulty management resulted at first in complete failure of the new institution; when however the Government was obliged to have recourse to the enactments (of 1931) mentioned already, the "Prizad" was entrusted with the carrying out of the necessary measures, and from that time on its importance for agriculture and the export of agricultural products from Yugoslavia steadily increased. Actually, these enactments proved, as regarded internal trade, to be not merely useless but directly prejudicial; they expired, however, on July 1 1932 as they had become superfluous. It was in fact quite clear that a direct control of the price of wheat to be consumed *within the country* was unnecessary so long as precautions were taken that enough cereals remained in the country for the food of the population and for sowing, together with a certain reserve, while all surpluses likely to lower prices were withdrawn and disposed of. In this way the internal price is automatically brought to the level of the export price, provided the pressure of surpluses is removed. To ensure this removal is now the business of the "Prizad". The management of the "Prizad" has been thoroughly reorganized and since then it has not only undertaken this difficult task with efficiency but in the last three years has achieved practical results.

According to the trade returns for 1937 the "Prizad" bought in that year 102,700 metric tons of wheat with a total value of 184.7 million dinars; in 1938 up to end of December 184,350 metric tons were purchased at the price of from 150 to 170 dinars, as compared with which the world market prices in Liverpool and Rotterdam for spot wheat varied around 65 dinars per 100 kg. In 1937 the "Prizad" also exported—for the first time since the complete breakdown of exports in 1925—142,000 tons of flour, and also 26,000 metric tons of bran. In addition the "Prizad" purchased for export some 208,000 metric tons of maize, 1130 of fruit (fresh and dried plums), 1150 of beans, 9450 of oilseeds and 47,880 loads of opium. Marketing of all oilseeds is regulated by the "Prizad" and it is anticipated that several other crop products will also come under its control. Since the establishment of the "Prizad" it has been possible to maintain wheat prices above those of the world market. In consequence, as already noted, the internal price was maintained as high as the level of the export price, and indeed even rose so far above it that the "Prizad" from November 11 1937 up to the time of the new harvest in 1938 bought no wheat at all, as the price had risen to 240 dinars per quintal, while the world market price remained much lower.

The higher prices could be paid by the "Prizad" because the wheat was marketed in States (Germany, Italy, Austria, Czechoslovakia) which had

enacted marketing regulations and also maintained their internal wheat price above world market parity. The preferences in respect of clearings and quotas, established by agreement in the trade with these countries, enabled the "Prizad" to acquire in the past trading year 76.9 million dinars, which sum was assigned to the fund for the further encouragement of exportation.

In the meantime there has been a considerable increase in the funds of the "Prizad": a credit of 300 million dinars has been guaranteed by the Government, including 250 million for cereal transactions, 30 million for opium and 20 million for oilseeds. The purchases have been to an increasing extent effected through co-operative organisations, namely up to 7 per cent. of all purchases in 1934 and 23 per cent. in 1937. The grain trade is however the principal buyer for the cereals to be exported through the "Prizad", as only the trade is in a position to grade, by cleaning and sorting, the cereals consigned by growers, and thus obtain an exportable product.

The lack of warehouse accommodation has so far prevented the "Prizad" from tightening up the purchasing organization and from giving more effective assistance to the co-operative organisations. By an Order with the force of law of June 14 1938 a special joint-stock company has been set up in Belgrade under the name of "Silos A. G." with an initial capital of 220 million dinars which may be raised by means of credits to 800 million dinars. This company is to establish elevators throughout Yugoslavia for the storage and proper marketing of cereals, and when required also of fruit, eggs, opium, cheese, etc., according to local requirements. In the first place large elevators with a capacity of from 1000 to 1500 truckloads are to be erected in the districts producing the best wheats for export, as also in those areas where the production of breadstuff cereals is insufficient for local needs and requires to be supplemented. Besides these, intended primarily for stocks, as large a number as possible of smaller joint co-operative storehouses with less than 500 truckloads capacity are to be established with the help of subsidies and other forms of encouragement. Finally the "Silos A. G." is also to construct refrigerating plants for perishable goods such as fruit, vegetables, eggs, etc., and to undertake the proper marketing and transport of these. Bills are issued on warehoused commodities which can be discounted by the State banking institutions up to 75 per cent. of their value.

Provision has been made for close collaboration between the "Prizad" and the "Silos A. G.", so that the two organisations will support each other as far as possible. It should thereby become possible for Yugoslavian agricultural products intended for export to be marketed in future at the best prices obtainable and with the utmost rapidity, to be purchased from the growers in large quantities of uniform quality, and finally to be suitably standardized and graded for export.

The effect of the work of the "Prizad" on wheat prices is best shown by the fact that, as already indicated, the price of wheat before that organization began operations had fallen below 100 dinars per quintal, while before the 1938 harvest it had risen to 220 dinars. It is true that this rise has certain social disadvantages, as the consumers of wheaten bread, the town population,

industrial workers, and a small proportion of the farming population who supplement the more generally used maize meal by purchases of wheat flour, have to meet this increase in the cost of living without any chance of recouping themselves in other ways.

The cost of living index rose from 60 in 1934, when it was on a gold basis, to 78 at the end of July 1938 (the increase reckoned in dinars is from 860 to 1109 dinars) (1); that of foodstuffs (1926 = 100) from 63 to 84 (2). On the other hand the national income derived from agriculture rose from 19 milliards of dinars in 1934 to 22 milliards in 1937; in other words, the purchasing power of the farmers was increased by that amount and accordingly the whole national economy reaped the benefit. The value of the wheat crop rose over the same period from 1273 to 1862 dinars per ha. Since 81 per cent. of the inhabitants of Yugoslavia belong to the farming classes, the rise in wheat prices cannot in itself be regarded as unfortunate, although it may involve consequences undesirable from other standpoints.

Development of a new trend of agricultural production.

The necessity of a change in the general direction of Yugoslavian agricultural production thus becomes evident. Such a change is undoubtedly inevitable for various reasons which for considerations of space cannot here be detailed. One only may be mentioned, the need for counteracting the unfavourable consequences of overpopulation in the rural districts by employing more labour in the processes of production. Instead of production a surplus of wheat and maize, the object should be to grow crops which require more intensive and better paid labour than do these two cereals. At the present time wheat and maize crops cover an area much larger than that under all the other crops. The country is thus still under the régime of a primitive cereal cultivation and there is no opportunity of introducing a scientific and intensive rotation. A more intensive farming would include the cultivation of oilseeds, tobacco, sugar-beet, fibre crops and other industrial crops. As however the increase in the prices of wheat and maize have had the effect of reinforcing and encouraging the conservation of the Yugoslavian farming class, all the measures taken by the Government for an intensification of agriculture are hampered and rendered difficult of application (3). The Government is fully aware of the position and anxious to render the export of agricultural products less dependent on wheat and maize, and has accordingly issued a series of orders fixing minimum prices for such crops as it is thought advisable to grow with this purpose in view, especially oilseeds (colza, rape, ca-

(1) BENKO-GRADO, Dr. A. Baron: Index. July 1938. Zagreb.

(2) Narodna pricreda. Nationalbank. No 3. 1938. Belgrade.

(3) This objective was embodied in the law of September 6 1929 on the improvement of agriculture, drafted by the author as Minister of Agriculture and carried into effect by him. See the previously mentioned work of V. PERTOT, p. 630.

stor, sunflower and — for German requirements — soybean) as well as cotton and rice. As these products are not — with the exception of soya — intended for export, they will not be discussed there, although it may be remarked that the increase in their production may in the near future affect the composition of Yugoslavia's agricultural exports, and in the case of cotton and rice, imports.

Future prospects for Yugoslavian agricultural exports.

Work similar to that of the "Prizad", particularly in regard to exports, is also carried on in the export of livestock and livestock products by a department of the Institute for the Promotion of Yugoslavian Foreign Trade in Belgrade. The powers of this Institute, it is true, are not so far-reaching as those of the "Prizad", as it can transact no business on its own account and has no working capital, but the whole of the trade with countries with which Yugoslavia has concluded clearing and quota agreements is in its hands, and it thereby systematically exercises control over the export market, which already works with remarkable smoothness, especially in regard to animal products. It is due to the work of this Institute that new markets for Yugoslavian exports have been found and maintained in the Mediterranean basin. It may also take the credit for the fact that these products have become known in Northern Europe, England, the Netherlands and Belgium, and that their producers are endeavouring to give permanence to these trade relations.

In the two institutions, the "Prizad" and the Institute for Promotion of Foreign Trade, Yugoslavia has set up central offices for the organization of its foreign trade, which in some degree are opposed to the liberal conception of trade. Till quite recently a completely free trade policy was followed in Yugoslavia; in all trade agreements the most favoured nation clauses were respected even when their application was prejudicial to the interests of the country. The discriminations made by nearly all States against the most favoured nation clauses finally forced Yugoslavia also to apply discriminations against States which make use of these clauses for their own benefit without giving any advantages in exchange. Hence Yugoslavia was finally reduced to a system of one-sided protectionism, export quotas, payments by means of clearings, barter of commodities, etc., in short, to the adoption of all those methods which are the features of a modern planned economy.

The experience of Yugoslavia has been that by means of this process the national income has increased, the real income of *all* productive classes has been raised and the economic capacity definitely strengthened. It is to be assumed that Yugoslavia will continue with the economic policy which is now being pursued.

Yugoslavia is now on the way to a comprehensive industrialization. Efforts are being made to increase the volume and value of the exports of raw materials and semi-manufactured goods, that is to say, of goods which entail more labour in their production than agricultural products; the object is also to extend the means of production and branches of production beyond the limits of agriculture pure and

simple. This policy is being effected for a number of political and economic reasons which make industrialization, within the practicable limits of the home production of raw materials and with due regard to the protection of the land, appear *desirable*. It is however not merely desirable but also *essential* that Yugoslavia should build up industry to the greatest possible extent, so as to provide employment for such surplus population as can no longer produce sufficient supplies of foodstuffs, and to divert labour to manufactures. For reasons of space statistics in regard to the overpopulation in rural areas of Yugoslavia cannot here be quoted and in this connection reference must be made to publications already available (1). For the purposes of the present enquiries it is enough that this necessity should be clearly recognized, as well as the fact that industrialization is in practice the shortest and most effective method of eliminating, so far as possible, the disastrous results of overpopulation (malnutrition, high mortality, intellectual stagnation, lowered purchasing capacity, decreased taxation yield, etc.). As there has been an increase in the number of workers in industry from some 225,000 in 1929 to about 700,000 in 1937, it is at once evident that these former self-suppliers, once detached from the land, are now becoming consumers of all kinds of agricultural products and that this consumption must primarily be at the expense of the former export surpluses. These latter must therefore diminish in direct proportion to the increase in the numbers of industrial workers in Yugoslavia. The reduction in exports of agricultural products will be seen especially in the most important foodstuffs: bread cereals, meat, beans, fruit, etc. These will tend to dwindle as the production of commercial crops (hemp, oilseeds, tobacco), early vegetables, fruit, etc. increases over and above home requirements. The labour forces now lying idle on the land would be better employed in such types of cultivation and at the same time the drift to industry would be less marked. As a final result however a decline in the export of agricultural products is to be anticipated as the consequence of increased consumption within the country. As these products mainly go to countries which have quota and clearing agreements with Yugoslavia, the importance of these countries will probably become less for Yugoslavia, unless they increase their purchases of the commercial crops enumerated above. In any case it is to the interest of Yugoslavia to export increasingly by preference such agricultural products as can meet the competition of the world market, and for which exporters can obtain currency payments without restrictions: chilled meat, eggs, poultry, fruit, hemp, dairy products, etc. Such a reorientation requires much time and persistence, involving the transition of Yugoslavian agriculture from the cereal economy now prevailing to a more intensive crop rotation combined with an increase in the cultivation of fodder crops and in stall feeding. It also demands a higher level of education and the development of co-operation, etc., all of which need for their realization time and patience.

(1) By the writer of the article: Problem relativne prenapučenosti u Jugoslaviji (The Problem of the relative overpopulation in Yugoslavia). Archives of the Ministry of Agriculture. Belgrade 1938. Also the writings of the author given in the footnote on p. 1.

There remains one other course to pursue: a change in the direction of exports from the West to the Near East and South, to the Mediterranean basin. Mention has already been made of this change and it is unnecessary to say more as to the prospects except that they depend on the extent to which Yugoslavia can place on these markets *all* its agricultural products — including pigs and maize — with very low costs of transport and time of transit. It remains to be seen whether Yugoslavia will resolve to take advantage of this opportunity. In any case such a change in direction of exports again requires much time and persistence and the overcoming of immense difficulties for the conquest of a market previously in the hands of powerful rivals. But just as the little Serbia in 1906, after Austria-Hungary suddenly denounced the trade agreement in existence till then, immediately found new markets for nearly all the products previously sent to Austria-Hungary, so now a change in the direction of Yugoslavian exports can be organized and realized within a new economic or political framework.

Dr. O. v. FRANGEŠ.

AGRARIAN REFORM AND THE RECENT EVOLUTION OF LATVIAN AGRICULTURE (1)

SUMMARY: Agrarian Reform. — The work of the State Land Bank. — Construction of rural buildings. — Labour and methods of farming. — Progress in agriculture and stockraising. — The Chamber of Agriculture. — Insurance. — Price-control.

Agrarian reform.

The ravages of the Great War and the repercussions of the Russian Revolution compelled the authorities to carry out an agrarian reform, giving land to the peasants who were without it. Further, the feudal type of agriculture, which had been firmly established in the country for several centuries, embittered the relations between the different social classes of the nation. This is comprehensible when it is realised that 800 families of the nobility owned 48.1 per cent. of the land, and that there were families owning as much as 30,000 hectares.

In Latvia, therefore, the chief aim of agrarian reform has been to provide land to those who lacked it, and so to create a new class of landowners.

The Land Office was created for this purpose; it dealt with the land belonging to the State, land bought in accordance with the agrarian law, and finally, land belonging to the Church and the communes. The original landowners are permitted by the law to retain from 50 to 100 hectares as well as industrial

(1) Report contributed by the Latvian Ministry of Agriculture.

enterprises established on their property; under the same law, the churches were allowed to retain possession of 50 hectares of land, and the municipalities the area essential to their needs. Legal servitudes which encumbered the land pooled in this way were abolished.

Land was distributed by the Office to small landowners who wished to increase their farms to the average area of the new farms which had been created in various parts of the country.

The maximum area of these farms was fixed at 27 hectares, but the area was varied according to the distance from industrial centres, or according to other economic circumstances.

In allotting the farms, preference was given to those who had taken part in the struggle for the liberation of Latvia. To put the newly formed farms on a sound basis, the allotments of the Land Office were calculated at a low price: for land yielding an average return, 10 lats per hectare; for land yielding a larger return, 20 lats per hectare. Those affected by this legislation were given full ownership of the land. They could therefore hand on the holding by inheritance, and could sell or lease it in accordance with the regulations of the civil code.

The agrarian law prohibited the same landowner from possessing more than 50 hectares of land. It also forbade the formation of farms of less than 10 hectares; no exception was allowed without the authorization of the Minister of Agriculture. Individuals owning several farms had to sell them within a period of three years, since legally they were only entitled to hold one.

Approximately 3,400,000 hectares of land had been assigned to the Land Office by 1 January, 1938. From 1,700,000 hectares of this area 54,154 farms, called "new properties", 1,502 gardens, 10,857 allotments for artisans and 3,007 fishermen's holdings have been created; 9,857 farms which had formerly belonged to seigniorial houses were given to farmers, who had rented them for a long period; 6,536 parcels of land were allotted to cultural organizations, 1,585 to industrial enterprises in the country, 7,347 have been incorporated in the Office for liquidating servitudes, 50,595 pieces of land have gone to increase the small farms and 11,274 areas have been reserved for other purposes. In addition, the original landowners have retained 1,306 farms and 492 industrial enterprises; 37,456 units have gone to increasing the lands of urban and rural communes.

Now that agrarian reform has been accomplished, Latvia has become a country of small farms, numbering some 276,000.

Farms whose area is less than 10 hectares (small workmen's allotments for example) amount to 44.5 per cent. of the total number of farms; those from 10 to 30 hectares, 41 per cent., from 30 to 100 hectares 14 per cent., over a hundred hectares, 0.5 per cent.

The other great task of agrarian reform, parallel to the breaking-up of large properties, has been the consolidation of holdings. Before the agrarian reform a peasant's land was composed of a large number of strips, which made cultivation difficult. Since consolidation, each farm is a continuous unit. The official surveyors have consolidated the land of 72,000 holdings in the eastern part of the country where strip cultivation was especially restrictive.

The work of the State Land Bank.

The State Land Bank was founded in 1922 to adapt mortgage credit to the needs of the newly created farms. It commenced operations at once; in the field of agrarian reform its task has been to fix the total amount of loans for the newly created farms and the conditions for their repayment. It has also had to decide on the total amount of advances to be granted to the small proprietors owning land sold by this bank. Long-term credits were indispensable to the newly created farms because buildings had to be constructed, the soil improved, livestock hired, etc.

Besides these operations, the State Land Bank had to make long-term loans to the farmers. Agrarian reform was not confined merely to the new farms formed from the territory of the State Land Office. A more difficult task was that of modifying the distribution of land in the villages, where, following the earlier Russian system, the land belonged to the peasants by right of common ownership and was allotted to them temporarily in long strips. The holders' scattered strips had to be consolidated and re-formed into single independent farms.

The mortgage debts on the farms formed from the land of the Office represent the value of the land and buildings, in some cases the values of the forests, and finally the expenses arising from surveying. The new owners rarely pay off the amounts due in cash; more often they avail themselves of the Land Bank's credit. The mortgage debts on 83,000 farms formed from the lands of the Office have been centralised at this bank as well as the mortgage debts on 43,000 farms formed from communal land and now standing separate. The debts to the State on these farms consist of the amounts owing for the land allotted by the Land Office to increase small holdings, and the expenses arising from surveying; the latter work has been performed at the expense of the government in the majority of cases so that the newly created farms have not had to pay much. The total amount of mortgage loan is 80 million lats.

The State Land Bank has granted loans for equipping 95,000 holdings formed from the land of the Office and 45,000 farms made up from communal land. The total of these loans is 95 million lats. The Bank has also advanced 9 million lats for other types of equipment.

The amortisation period for all amounts owed to the State is fixed at 41 years. Until 1927, the rate of interest was 4 per cent, but from this date it has been 2 per cent.

To assist certain farms to pay off their long term loans the Land Bank has recently granted 11.5 million lats to 15,000 landowners; one part of this sum, 8.5 millions, has been lent at a rate of per 4 cent. and must be repaid within 28 years; the other part, 3 millions, is lent at a rate of interest of 3 per cent. and is repayable within a period of 28 $\frac{1}{2}$ years.

Altogether, the State Land Bank has advanced 195.5 million lats to farms set up as a result of the agrarian law. The total amount of loans has been reduced to 135 million lats as a result of repayments and special annual pay-

ments, as well as of subsidies granted by the State. Farms formed from the land of the Pool are mortgaged on an average at 1,400 lats; i. e. at 87 lats per hectare.

Construction of rural buildings.

The problem of constructing farm buildings at first only affected those farms which had been newly created, those which had been ruined during the war, and finally, old holdings whose area had not exceeded 27 hectares. Farmers were able to obtain material from the State forests at a cost of a fifth of their real value for the construction of essential buildings. At the same time they were granted long-term loans by the Land Bank. To ensure that the new buildings should be comfortable and of good appearance, the Ministry of Agriculture worked out model schemes which were put at the disposal of those concerned. To encourage the use of non-inflammable building materials, a Government decree of September 9, 1926 granted landowners the cancellation of part of their debt; in this way the resources of timber have been spared. By the law of December 30, 1930, landholders could obtain non-inflammable building materials (of cement) free instead of wood.

On January 1, certain changes in the law relating to farm building came into force. By the new regulations the Ministry of Agriculture supplies non-inflammable building materials at a reduction of up to 50 per cent. of the normal price. Wood necessary for these buildings is sold at a reduction of 80 per cent. Those wishing to erect buildings in wood must buy the wood at the normal price, except for the quantity needed for non-inflammable buildings. Wood can only be obtained at half-price for barns. The non-inflammable materials supplied by the Ministry are bricks and slates. The Ministry repays farmers half the cost of transporting bricks by rail if the distance is over 50 km. The Ministry supplies sheets of insulating turf to protect the walls from cold. By the same law, the State Land Bank allows necessary loans for the construction of buildings. Those wishing to profit from these facilities have to build in conformity with model schemes worked out by the Ministry, or with private schemes approved by the Ministry. The subventions granted by the Land Bank to proprietors building with non-inflammable materials vary between 500 and 1200 lats. The subventions are paid in cash if the holding is not indebted in favour of the Land Bank. From these sums are deducted subsidies granted by the Government in supplying building materials at reduced prices.

The Latvian Chamber of Agriculture is assisting in the development of the country's prosperity. It compensates the farmers for part of the expenses to which they are subjected in irrigating and improving the hygiene of their properties.

The Ministry is authorized by special regulations to subsidize farm buildings erected on derelict land. There are 20,000 properties in Latvia ruined by the War for which the means must be found of constructing the most essential

buildings. To remedy this disaster, subsidies amounting to 5,417,277 lats have been granted by the Ministry of Agriculture.

Further, the Ministry ensures that the old war trenches are filled in and the ground levelled; in most cases this work is performed at the expense of the State. This intervention had resulted in 4,517 km. of trenches being filled in by March 1935. In removing parapets and filling in dugouts more than a million cubic metres of earth have been shifted.

On May 1, 1938, a law came in to force setting up a special fund for building working-class dwellings. This fund grants the money needed for constructing working-class dwellings and other buildings. Those having recourse to the fund for their building receive a cancellation of 50 per cent. of the loan; those not benefiting from this assistance receive a subsidy in cash. The resources of the fund are derived from half of a 1 per cent. tax on the sale of farm products, the other half being paid to the State Budget.

Between 1920 and 1930 farmers have constructed 324,432 fire-proof buildings at a cost of 573,325,394 lats; from 1930 to 1937 they built 69,195 buildings and 16,362 fire-proof buildings at a cost of 156,808,115 lats.

Labour and methods of farming.

The social structure of Latvia's rural population has been greatly modified as a result of the agrarian reform. The number of landless peasants working as farm labourers has been considerably decreased, since many of them have become landowners; these are the "new landowners" (in Latvian *jaunsaimnieki*). As the Board gave land not only to the farm labourers but also to townspeople who had taken part in the liberation of the country, the number of landowners has been greatly increased.

Number of farms classified by types, 1935:

	Number	Per cent.
Farms cultivated by their owner	232,978	84.51
Farms cultivated by tenant	30,108	10.92
Farms held in métayage	4,476	1.62
Farms lent to farm labourers as part payment of wages	8,136	2.95
Total	275,698	100.00

The owners and their families do nearly all the work themselves so that there are many holdings on which there are no wage-earners. According

to the 1935 census of farms, the number of agricultural wage-earners was as follows:—

	Number	Per cent.
Labourers engaged for the year	48,895	33.45
Labourers engaged for the summer season	45,986	31.45
Shepherds	40,049	27.39
Labourers engaged by the month	9,548	6.53
Technical Staff	1,722	1.18
Total	146,200	100.00

In those parts of the country where cultivation is more intensive, however, the lack of labour has been making itself felt during recent years. The working classes are attracted to the towns, where they can obtain commodities which are not to be found in the country. To check this exodus from the country, the Government has done much for the welfare of agricultural labourers. The Ministry of Agriculture has encouraged good housing by granting loans to proprietors and by supplying them with building materials at reduced prices. Labourers who have worked for one farmer for a long time are granted bonuses. Every month working-class families draw grants of from 4 to 5 lats for each child under eight years old. In the agricultural societies there are departments which attend to the spiritual and material needs of the workers. Finally, the Ministry of Agriculture assists in the purchase of agricultural implements and encourages the employment of modern methods of farming.

Progress in agriculture and stockraising.

The farms created by the agrarian reform have attained the average standard of agricultural development. Less conservative than the old landowners, the new farmers have frequently shown much more interest in the employment of modern methods of farming.

Very satisfactory crops have been obtained as a result of raising the standard of intelligence and through the technical assistance of the Government.

Average yield in quintals per hectare.

	1909-13	1920-24	1934-37	1937
Winter Rye	9.3	8.6	13.7	14.7
Winter Wheat	12.4	10.6	14.6	13.7
Summer Wheat	8.2	8.9	11.0	11.3
Barley	9.1	8.3	10.8	12.0
Oats	9.1	8.2	11.2	12.1
Potatoes.	80.3	90.1	131.8	140.2

Like agriculture, stockraising is now giving very satisfactory results and is the peasants' most important source of revenue. The number of farm animals has increased very considerably. In 1937 the number of horses had increased by 7.5 per cent. on the years 1925-34; the number of cattle by 16.5; that of pigs by 32.99 per cent. and that of sheep by 26.33 per cent. Similarly, the production of milk has greatly increased. While in 1927-28 a cow gave an average of 1680 kg of milk per annum, in 1936-37 it yielded 2290 kg.

As agriculture is the form of production best suited to the country, the Government has subsidised all branches of the rural economy, i. e. cultivation of cereals, stockraising, etc.

More than a third of Latvia suffers from excessive humidity, so that the Government and the farmers attach very great importance to the work of improving the soil. Now that the level of certain rivers and lakes has been lowered, it has been possible to start draining the fields and meadows. The farmers have formed Land Improvement Societies for digging the main drains; in 1938 there were 2300 such societies, with a membership of 70,000. The Government placed its technical staff at the service of these societies, while at the same time it is responsible for from 50 to 90 per cent. of the cost of the work. The Land Bank has granted long-term loans (28 years) towards helping the farmers to carry out the improvement of their land. From 1921 to 1937 the length of rivers deepened and drains dug was 20,750 km. The work has cost the Government 30 million lats and has enabled nearly 515,000 hectares of land to be drained. The farmers have at their service special bureaux which prepare improvement schemes. At a small charge, the Government hires out tractors and other agricultural instruments to the farmers for clearing the land; similarly, they pay 50 per cent. of the cost of transporting the drainage pipes.

The Chamber of Agriculture.

Up till 1935 farmers were grouped in several central organisations aiming at the development of agriculture. From this date a special law assigned the task to the Chamber of Agriculture. The Chamber consists of 120 members representing the farmers of whom 100 are nominated by the Minister of Agriculture, selected from lists of candidates drawn up by the agricultural associations; the other 20 are chosen from a list of candidates proposed by the chairman of the Chamber. The latter are chosen from the élite of the farming world; the Dean of the Faculty of Agricultural Science of the University of Latvia is a permanent member. The business of the Chamber is conducted by the President, the Council, and the General Assembly. The President and Vice-Presidents, five in number, are nominated by the Minister of Agriculture. These 6 persons together with a representative of the Minister of Agriculture form the Executive Committee of the Chamber.

The work of the Executive Committee is distributed between 15 departments:— (1) administration; (2) societies of agricultural economy; (3) agricul-

ture; (4) zootechnical; (5) economic; (6) labour; (7) cooperation; (8) instruction; (9) horticulture; (10) bee-keeping; (11) building; (12) technique and rural housing hygiene; (13) land improvement; (14) domestic economy; (15) pisciculture. This enumeration of the departments gives a general idea of the work of the Chamber.

The Chamber itself comprises 15 departments corresponding to those of the executive committee.

The General Committee of the Chamber coordinates the activities of the organizations formed for carrying out the work planned in the Departments and approved by the Executive Committee; it investigates problems affecting the development of agriculture, decides measures to be taken and checks the financial statement of the chamber before placing it before the general assembly. The President, the Members of the Executive Committee, and the Heads of Departments take part in drawing up the financial statement.

The funds of the chamber consist of (1) revenue from its own property; (2) payments for services rendered; (3) allocations from the State; (4) donations and unforeseen payments. In the financial year 1938-39, the Chamber's budget amounted to 3,517,283 lats. The Chamber possesses a considerable number of agricultural scientists and maintains several schools and experimental stations. It assists farmers to cooperate and encourages anything that may be conducive to the development of the different branches of agriculture.

Insurance.

There is a special assistance fund, whose activity is regulated by law, to assist farmers suffering from losses caused by hail, flooding or storms. The Ministry of Agriculture ascertains the losses suffered and fixes compensation in proportion to the damage.

The funds for this are obtained from (1) farmers' contributions; (2) Government subsidies; (3) donations. The farmers' contributions are very small, being about 0.05 per cent. of the value of the property.

In the same way, farmers are compensated for buildings, fruit-trees and fields which have sustained damage, if this damage does not amount to more than 25 per cent. of the value of the property. If the farmers' contributions are insufficient to compensate for the losses, the State makes up the difference.

In each commune there is a mutual fire insurance society with which farmers have to insure all their buildings. These societies also insure crops and livestock. All these societies belong to a central society by which they are reinsured for the most serious risks.

Price-control.

The control of the prices of farm products was begun in 1934 by the authoritarian government of the President, Dr. K. Ulmanis. Official institutions, the provincial cooperators and the central farmers organizations have been

called upon to collaborate in controlling the markets for agricultural products. These markets are authorised to buy the chief agricultural products at a price fixed by the Government and to sell them to consumers or to export them. This policy, which tends to keep prices stable throughout the country, influences private enterprise by forcing it to adapt its prices to those fixed by the Government. When the buying price is higher than the selling price, the difference is paid to the central organization by the Government. In fixing the prices for all the principal farm products the Government leaves a margin between the sale-price and the cost of production so that a normal return accrues to the farmer.

INTERNATIONAL CHRONICLE OF AGRICULTURE

NETHERLANDS

In the Netherlands small- or medium-sized farms account for most of the agricultural production, and from the point of view of employment of labour, farming is very intensive. Horticulture is also of very great importance. Such a distribution of farms, together with the large supplies of capital seeking investment, was bound to result in a highly developed specialization. On the other hand, this highly intensive farming made it impossible to obtain within the country all the raw materials required for animal production. For this reason, side by side with a large output of commodities obtained by a great outlay of capital and labour (butter, cheese, bacon, eggs, vegetables, fruit, flowers, flower-bulbs, etc.) there is a very large import of stock feeds. The reduced purchasing power from 1929 onwards curtailed trade in luxury products; later, the policy of import restrictions adopted by nearly all countries had even more unfavourable results. The position of Netherlands agriculture and horticulture during the crisis was thus one of extreme difficulty, and to meet it the Government was obliged to take special measures.

The following table gives some index-numbers which show the trend of prices paid to farmers for their principal products (average of prices from 1924-25 to 1928-29 = 100).

Products	1934-35	1935-36	1936-37	1937-38
Wheat.	77	70	68	69
Rye	65	63	75	64
Barley.	73	64	71	63
Oats	60	59	69	59
Potatoes	73	53	60	72
Beef	54	47	61	72
Pigmeat	44	50	57	75
Butter.	51	55	58	63
Cheese.	44	47	48	55
Fresh milk.	60	64	67	75
Eggs	41	43	49	55

The prices of animal products, especially in the later years, were relatively lower than those of the production requisites. This has actually been the Government's aim. There is already an overabundance of animal products and a favourable relationship between cost of production and prices obtained by farmers (allowing for taxes and subsidies) would result in another large increase in production. But the situation is not as unfavourable as the figures might suggest because considerable technical progress has been made in recent years.

With the beginning of 1938, the situation changed however; cereal prices on the international markets again fell, while those of animal products remained at the comparatively favourable level reached in 1937. Prices within the country followed the same trend but much less markedly: by means of import levies and subsidies to production, the level of the end of 1937 was on the whole successfully maintained.

The improvement in the situation in recent years is shown by the data from farm accounting for farms in certain areas representative of the country's agriculture:—

Area	Gross return	Farm expenses (1)	Difference
	(Florins per hectare)		
Grazing land districts, clay soil — Friesland:			
1935-36	268	144	124
1936-37	314	163	151
1937-38	353	182	171
Arable land districts clay soil — Friesland:			
1935-36	298	186	112
1936-37	370	211	159
1937-38	395	233	162
Sandy soil districts — Overijssel:			
1935-36	246	183	163
1936-37	308	200	102
1937-38	336	213	118
Delf and Schie areas in South Holland:			
1935-35	408	284	124
1936-37	470	312	158
1937-38	503	349	154

(1) Including estimated wages to adult children of the family working on the farm, but excluding estimated wage claims of farmers and taxes.

General tendencies of agricultural policy.

The policy of the Government has thus been as follows: An attempt was made to encourage the growing of cereals likely to find a market within the country (where prices might be influenced), at the expense of the crops grown for export. Wherever possible and desirable, the production of the export crops was reduced so as to limit the supply to the requirements of the home market. This limitation was not practicable for other products; in this case prices within the country were successfully raised by means of somewhat complicated method, and an average price, remunerative or nearly so, was secured for all production. This policy was carried out by

means of special organizations, set up for the purpose in accordance with the laws on the agricultural crisis (1). These organizations exercise some control over production, imports and exports, and even, in many cases, over consumption. They collect levies on certain products and pay out subsidies and rebates on others.

During the first years of the crisis the purpose of the measures taken was merely to protect certain branches of national economy against serious losses. The law of 1933 conferred more freedom of action on the Government, but still embodied the idea of assistance over a period of crisis. It was only later that the idea of a general definitive regulation began to make headway.

In the second half of 1936, when most countries seemed to have emerged from the crisis and when, on September 28 of that year, the Netherlands were obliged to abandon the gold standard, the foreign prices of agricultural products, expressed in Netherlands currency, rose very considerably. At this moment it became possible to simplify the intervention policy and at the same time to make it more permanent. This modification is still in process. The methods of assistance given to agriculture have varied in detail according to the nature of the various products. Experiments were made which it was often necessary to modify later. In the following survey only brief references will be made to these discorded measures. To avoid repetitions, it may be stated here that, speaking generally, the importation of the various agricultural products is placed under a monopoly or at least under a quota system, so as to protect the home market against foreign products. Moreover, monopoly taxes serve the twofold purpose of raising home prices and of financing the assistance given to agriculture.

For the export of Netherlands products compensation is often given to the producer for the increase in home market prices consequent on the measures relating to imports.

Wheat market.

The price of home-grown bread wheat is fixed before the sowings. It is a remunerative price, very favourable in comparison with the prices of most other products. Farmers consequently endeavour to grow as much wheat as possible, and hence the Government has had to intervene to limit the sowings (except for the smallest farms) to one third of the arable area. At the end of 1936 the limitation was abolished. From 1925 to 1929 the average area under wheat was 54,800 ha., in 1936 the area was 151,200 ha. This home-grown wheat is bought by a special organization, membership of which is compulsory on the farmer and from which he may be expelled in the event of serious infringement of the rules prescribed, for example, for malpractices in connection with delivery. This organization delivers the quantities required for bread-making to another organization which, with certain exceptions, mixes the home-grown wheat with imported wheat—35 per cent. of the wheat milled for bread-flour must be home-grown—and delivers it to the mills. The flour produced from this mixture is sold to the bakers at a fixed price. Wheat, wheat flour and other cereals and cereal products, as well as pulses may be imported only through a monopoly organisation which imposes on the importers a levy known as "Difference between the monopoly's purchasing and selling price".

(1) Laws of May 5 and of August 5, 1933 (*Staatsbladen* No. 261 and 418). For a French translation, see the *Annuaire international de législation agricole*, 1933, p. 475 and p. 484.

Secondary cereals market.

For rye, barley, and oats, the subsidy measures result in prices relatively lower than those of wheat; this is reasonable in view of the fact that these cereals are mainly used as stock-feed and that it is essential to keep prices of livestock products as low as possible. Moreover, the bulk of these cereals and especially rye, grown mainly on the small farms of the sandy districts, is consumed by the animals on the farm itself. Measures in favour of these cereals are thus limited to: (a) a monopoly tax on imports; (b) a subsidy on barley production (threshed on the farm, under the supervision of an inspector of the Agricultural Crisis Service); (c) a denaturation bonus on imported rye, the object of which is rather to reduce the price of fodder rye—before the crisis, the Netherlands were among the largest importers of rye.

As soon as cereal prices rose, import levies were reduced and the two other methods of intervention were abolished. In 1938 levies were again increased on several occasions and in September the denaturation bonus on rye was reintroduced. Further in October and November 1938 the Central Arable-farming Organisation bought at a price higher than the market price, and temporarily stored, certain quantities of barley.

Results of the interventions have varied: the area under rye, which is grown mainly in the sandy districts and in the Fen Colonies, has further increased, although wheat-growing has been introduced into these regions; barley, within certain limits and on certain lands, is a remunerative crop and there has been an extension of its cultivation. In the case of barley a special and favorable factor was the introduction of malting barley, formerly very little cultivated in the Netherlands. Cultivation of oats, on which the import levy is lower than on the other cereals has somewhat decreased.

Pulses in shell market.

Normal prices have been fixed by the Government for peas, kidney beans and broad beans. In face of actual prices which, supported by a monopoly's import levy, had already before the 1936 harvest exceeded the established normal prices, the import levy only was maintained and a denaturation bonus for peas assigned, with the object of withdrawing from the home market a proportion of the surplus which was causing congestion. In 1936 a threshing bonus was introduced for beans similar to that given for barley. In 1937 this bonus was abolished and replaced by a denaturation bonus similar to that given for peas.

Flax market.

Flax fibre is an export product and for several years its price was much below costs of production. Encouragement was however given by the Government to this crop; in the first place it requires much labour (including processing during the winter), thus reducing rural unemployment, and, although this is a secondary consideration, it is very useful in the rotation. Bonuses were calculated up to 1936 for a maximum area of 15,000 ha., in 1937 the calculation was for 18,400 ha.: payment is made per harvested hectare. There is a processing bonus as well as a cultivation bonus.

Potatoes market.

After several attempts at subsidising, a cultivation fee was finally imposed in 1935 on potatoes grown for consumption with restriction of the area on which cultivation is allowed. The levy is used to pay denaturation compensation for quantities which cannot be sold for consumption.

Since 1930 the situation had become serious in regard to potatoes grown for potato starch, one of the main products of the Fen Colonies. After several attempts to improve the position of stocks, an export monopoly was adopted for the season of 1934-35. Since then, factories have obtained a remunerative price for their output and can now pay 1.30 florin per quintal for potatoes. Potato-growing is allowed only within certain limits, fixed in relation to the total quantities which it is considered can be utilized and to the character of each farm.

Sugar-beet market.

This product was among the first to be subsidized. Beginning with the 1931 crop, and for a certain percentage of the quantities delivered to the refineries during the three years 1928-30, a minimum price was guaranteed, based on the average price of sugar. In 1936 the quota for each farm was reduced, a supplementary quota being allowed in certain regions and to farms which owing to their special character are dependent on sugar-beet production.

Horticulture.

Certain limits have been placed on the area of vegetables in the open or under glass, of flower bulbs, of flowers, of fruit and small fruit, and of nurseries. Cultivation for the market beyond such limits is an infringement involving penalties. With some exceptions, all products for sale must be sold by auction. Vegetables which cannot be sold at a given price are distributed to needy persons, bottled or even destroyed, and the growers receive compensation. Prices of orchard and small fruits grown in the open or under glass have usually been high enough to make intervention unnecessary, except of course quota-fixing of the imports and the import levy. The fruit juice industry, which absorbs considerable quantities of fruit of inferior quality, is making steady progress; the demand on the part of the public has increased considerably in recent years. For flower bulbs, in addition to the restriction of areas and the principle of minimum prices, it has been made obligatory to consign certain hyacinth bulbs to an organization which purchases and destroys the unsaleable surplus; export is controlled. Although the financial results of these types of cultivation are still far from satisfactory, a considerable advance has been achieved as compared with the worst years of the crisis.

The Netherlands are large exporters of flowers and there is always a large demand within the country itself; there is however an excess import of ornamental plants. The position for growers of cut flowers still remains unsatisfactory; it has been necessary to destroy large quantities of flowers which found no buyers at auction sales. Measures taken in favour of nurseries do not greatly differ from those relating to other branches of horticulture. Mention may be made also of the credits accorded to horticulture. There is a gradual but slow improvement in the economic situation.

Stock-raising.

Cattle- and pig-breeding are of very great importance in the Netherlands. In 1937 permanent grasslands constituted 55 per cent. of the agricultural area. The relatively higher prices of crop products have had only a slight influence on the transformation of grasslands into arable lands; owing to the soil structure, the greater part of the grassland, although forming excellent meadow land, is not very suitable for ploughing. The cattle grazed are mainly dairy herds; meat is rather a by-product. The milk not consumed in a liquid state is converted into butter, cheese, condensed milk and milk powder. The skimmed milk, buttermilk and whey of which there are considerable quantities, are used to fatten calves and especially pigs.

With a view to limiting animal production, breeding of calves and pigs has been made conditional on the issue of special permits. The effects of this measure can only be slow so far as cattle-breeding is concerned; farmers still have very large numbers of calves. As the old cows are replaced by young cows, the farmers take the opportunity to improve the quality of their stock. In this connection it is significant that 13 per cent. of the dairy cows were put under yield tests in special associations in 1937, and the total milk production is on the increase from year to year. Measures affecting prices are concerned mainly with taxes on consumption within the country and with export premiums. The result of these is an average price, paid to the producer, which is barely remunerative. An export monopoly was instituted at the end of 1936: only exporters belonging to the crisis organization set up for dairy products are entitled to export specified dairy products to countries specially designated. There was already in existence an import monopoly both for dairy products, imports of which are of very little importance, and for beef. The consumption tax on meat, the proceeds of which were devoted to the crisis funds was abolished at the end of 1937.

There has been a more effective limitation of pig numbers. Here also the price policy has been of great importance. Although the pork butchers retain the right to buy pigs for slaughter, the purchases of the central organization for carrying out crisis measures in regard to pigs outweigh all others. This body pays prices varying with the quality. Moreover, the central organization, during certain periods, purchased only bacon pigs, that is, pigs weighing less than 60 kg. As a result of these measures, there was a decline in the total numbers of pigs, from 2,082,000 in May 1934 to 1,406,000 in 1937, while the numbers of pigs weighing over 60 kg. fell from 735,000 to 372,000 in the same period. Subsequently, owing to the improved situation, there has been an increase: in May 1938, the figures were respectively 1,538,000 and 388,000. From 1930 to 1937, the number of members on the Herdbooks for pig-breeding rose from 2,230 to 12,865, the number of boars awarded premiums for quality increased during the same period from 470 to 1,788, and the percentage of sows served by boars registered in the Herdbooks rose from 13 to 71 per cent.

An existing tax on pigmeat was abolished at the end of 1936.

There has been an increasing interest in *horse-breeding*, and the number of mares served rose from 44,700 in 1934 to 60,900 in 1937.

Sheep-breeding is of no great importance. The interest in *goat-breeding* is to be attributed mainly to the constant need existing among large groups of the population to reduce cash expenditure as far as possible.

The poultry industry, which at the beginning of the century was so little developed that the Netherlands was a large importer of eggs, has since then shown a steady increase. It attained very great importance in particular after the world war and now the country stands second on the list of egg-exporting countries.

Poultry-keeping is partly carried on on specialized holdings but mainly on farms where it is a very useful side-line, this being the case particularly of small farms in sandy districts. For this reason and also because poultry-raising requires a great deal of labour, it is not practicable to reduce production to any great extent, although prices on foreign markets are not at all satisfactory. The object of the measures taken is thus rather to prevent increase in total production while increasing the yield per hen. In the first place, hatchings in incubators beyond a certain quantity and for longer than a certain period are prohibited. Even on the small farms, chicks used for breeding purposes are bought mainly from specialized breeding farms. As a result of the restriction of the hatching season to a period ending at the beginning of May, the young hens are already full-grown and strong at the beginning of winter. A regulation encouraging the purchase by the hatching farms of eggs from breeders with a reputation for the quality of their birds has still further influenced the quality of the poultry.

Exports of eggs and poultry at the prices ruling on the English market cannot be remunerative, largely because of the relatively high prices of poultry feeds. To balance these prices, rebates are given on exports; these are too low to be regarded as actual premiums.

Special measures for small farms.

All the measures mentioned above aim at making certain types of arable farming and stock-raising reasonably remunerative. But they mainly affect large and average sized farms, so that the small farms have gained relatively little benefit from them. To deal with these a special organisation has been set up.

The small farm plays a very important rôle in Dutch agriculture. It makes it possible for a farm labourer to achieve independence. As a result agricultural areas where there are adequate possibilities of forming such farms, especially sandy areas, are less depopulated than others. In addition small proprietors make excellent citizens and help greatly in the accumulation of new capital, since they are keen, they have a sense of responsibility and they are eager to save. To encourage the growth of this class a law was passed in 1918 assisting agricultural labourers to obtain a dwelling and a piece of land. With the same object, facilities were given in 1919 for forming small farms on land which had been newly broken up. In 1934 it was decided to found a special bureau for small farms. This bureau made a thorough investigation before deciding on the methods to be employed. As a result of this investigation, small farmers were divided into three groups:— (a) those working regularly for other farmers; (b) those working chiefly on their own land who, as it does not use all their time, seek occasional work on larger farms, the return on their own land being too small for them to live on; (c) those whose whole time is spent on their own farms, too small for subsistence in bad seasons.

Action regarding group (a) is a problem of unemployment and is therefore dealt with by the Ministry of Social Affairs. Action in relation to group (c) is concerned with the yield of the farm and is decided by the Ministry of Economic Affairs. Problems affecting group (b) are dealt with by these two Ministries together. The ordinary scheme for unemployment assistance covers the needs of the first group. These workers, like those owning no land at all, receive a regular payment throughout periods of unemployment. In addition, an attempt is made to employ them in the public utility works which have been started of late years to reduce unemployment. The work on behalf of groups (b) and (c) has been centralised at the Bureau

for Small Farms, which began taking direct action on November 1, 1937. Each small farmer receives personally advice and information from assistants on the staff of agricultural advisors. Each assistant looks after the interests of a very small number of farms. So long as they follow the advice given, the farmers in group (b) receive a payment in cash each week, while those in group (c) receive tickets for obtaining farm equipment at very reduced prices or sometimes even free. The cash payment varies directly with the return from the farm and inversely with the size of family. The tickets are given after the responsible assistant of the Bureau has calculated the need for chemical manure or of food for livestock; or where he is convinced that the farm needs certain machines or tools. The object of these tickets is not so much to obtain equipment for the farms but rather to enable the farms to follow the advice given.

After one year's operation, great progress can already be recorded and it is expected that certain improvements may serve as models even for the larger farms.

Drainage of a part of the Zuyderzee.

The formation of the north western polder, the Wieringermeerpolder, and the construction of the dyke which separates the southern part from the open sea, were finished several years ago. In the polder, the digging of canals and the laying out of roads are continued, as also the improvement of the soil and the erection of farm buildings and of buildings for public services, etc. All this is effected at the expense of the State; farm holdings are then rented off where after several years of cultivation the structure of the soil and the low percentage of sea salt reached makes it possible to expect satisfactory yields. In 1938 the area worked by the special organization founded by the State for the land improvement was 7,609 hectares, there are besides 8,647 ha, forming 214 fully equipped farms with buildings and 1,113 parcels rented without buildings, and 631 hectares were taken up by plantations of young trees, villages, etc. Lands intended for buildings other than farm buildings are leased on terms of emphyteusis. The land-rent is fixed on the basis of the index-numbers of prices of agricultural products, calculated by the Bureau of Agriculture, separately for arable and for grazing lands. On November 1, 1938 a further 54 farms of a total area of 1,915 ha. were rented.

The new polder is not yet divided into communes, but is administered by a public body of a form which is new to Dutch law (1); this corporate body, *De Wieringermeer*, is made responsible for the improvement of the lands for agriculture, and for the construction of dwelling houses and roads; this body has the administration of the State properties and is entitled to farm up to a maximum of 1,000 hectares on account of the State; it has to administer all interests relating to the water-ways or water supplies within, and, for certain purposes, outside the polder; and finally to take all measures which are ordinarily within the competence of the communes.

The construction of the dyke for the second polder situated at the north east of the lake is going forward. This polder will have the advantage of the immense experience gained from the Wieringermeer; in addition the reclaimed land will from the outset have a much reduced percentage of sea salt, as it is now covered by the fresh water of the Yssel Lake, whereas the dykes of the first polder were finished before the closing of the great dyke which formed the new lake.

(1) Law of May 31, 1937, *Staatsblad* No. 521.

Law on tenancies.

The law on rural leases was revised by a Law of May 31, 1937 (1). Up to this time they had been regulated by the Civil Code introduced into the Netherlands in 1838 and based on the Napoleonic Code. The new law contains a number of stringent provisions. The length of the lease, except in rare cases, is not fixed; the contract cannot be dissolved till after ten years and only at one and a half years' notice. Both landlord and tenant have quite definite obligations. The landlord is required to deliver to the competent magistrate a signed copy of the lease. If the magistrate considers that the rent is too high to ensure a reasonable standard of living for the tenant and if he does not succeed in obtaining the consent of both parties to a reduction, he can annul the lease. If the landlord has not delivered the required copy within the stated period, the terms will be presumed to be in agreement with the current usages for farms or lands of similar character, except as regards provisions which may be more favourable for the tenant. The landlord is bound, for the duration of the lease, to undertake all the repairs necessary, other than the small upkeep repairs which are the duty of the tenant; if he omits to fulfil this obligation after written notification from the tenant, the latter has the right to carry out the repairs himself at the expense of the landlord. As a rule, the landlord is bound to pay to the tenant, on the expiration of the lease, fair compensation for improvements made by him. Under certain conditions, the tenancy may be modified during the duration of the lease, in favour of one or the other party.

In the event of notice to quit being given by the landlord, the tenant may apply to the court for annulment of the notice; the magistrate will refuse such application only under certain conditions. Compensation may also be granted. Special courts have been set up for hearing these cases. These are the cantonal tenancy commissions of the canton court of justice, consisting of the canton magistrate as president and two experts. In addition organizations having legal personality have been instituted with the object of promoting good relations in respect of rural leases. These bodies, the recognized Tenancy Offices, will have the right to approve leases and when thus approved, there will be no obligation on the landlord to deliver a copy to the magistrate. These Offices will also give advice on tenancy questions and will draw up standard contracts. The law came into force on November 1, 1938.

Law on agricultural exports.

The new Law of February 4, 1938 on the export of agricultural products (2) replaces the law of 1929. The former law had regulated exports of butter, cheese and bacon and had empowered the Government to regulate exports of other products by means of regulations of public administration to be ratified afterwards by law. The law of 1938 regulates exports of 53 agricultural and horticultural products and provides that not only the products themselves but also their packing shall be subject to criteria of quality. Control at the time of export may be in the hands of private institutions having legal personality. The new law does not so much introduce fresh regulations as confirm and extend the action already taken by private initiative or by the agricultural crisis legislation.

(1) Law of May 31, 1937, *Staatsblad* No. 205. For a French translation see the *Annuaire International de Législation agricole*, 1937, p. 77. — (2) *Staatsblad*, No. 600.

Law on consolidation of holdings.

The new law on consolidation of holdings (1) greatly facilitates the procedure. Under the law of 1924 the application for consolidation had to be signed by at least one fourth of the landowners: now, it is enough if one fifth sign; the initiative in the matter is also conferred on agricultural associations and on certain bodies having legal personality. Under the former law, the scheme had to be approved by a majority of owners who were also owners of more than one half of the lands; now it is required only that one of these two conditions shall be fulfilled.

UNITED KINGDOM

In the summer of 1937 industrial prices began to fall while agricultural prices continued to rise; at the beginning of 1938 both industrial and agricultural prices were falling; now, in the second half of 1938 industrial prices have been steady while agricultural prices have continued to fall rapidly.

The check to the fall of industrial prices suggests that the deterioration of the general economic situation in the United Kingdom, which has been going on since the summer of 1937 is being halted. The rapid increase in the number of unemployed—from 1,413,000 in 1937 to 1,708,000 in the first quarter of 1938—has ceased; the figure for the third quarter of 1938 was 1,716,000. The index of industrial production prepared by the Board of Trade has however continued to fall. There is as yet little evidence of increased prosperity likely to have a favourable effect on the agricultural situation. The level of money wages remains steady and the number of persons employed has fallen slightly in recent months.

The index of the level of prices of agricultural produce fell from 90 in June to 82 in November (2), this latter figure being the lowest since September 1936. The prices of cereals and farm crops have fallen more sharply than have the prices of livestock and livestock products. The greatest individual changes shown in the index have been the fall in barley price index from 120 in January to 68 in November and in wheat prices from 83 in January to 44 in November. The index of sheep prices fell from 82 in January to 67 in November; fat cattle prices have changed much less, the index being 89 in January and 80 in November.

The fall in barley prices must be in part attributed to the heavy home-harvest; the estimated total produce in 1938 was over 933,000 long tons, that in 1937 was 705,000 and the average for the years 1927-36, 867,000 long tons. Sheep prices have fallen much more heavily than is warranted by any apparent change in the supply position; home marketings of sheep and imports of mutton and lamb were not much different from the average. Some explanation of the fall may be found in the bad situation of the skin and wool trades adversely affected by world conditions.

Agricultural imports in the first nine months of 1938 valued £ 305 million, to be compared with £ 294 million for the first nine months of 1937 (3). The quantities

(1) Law of May 20 1938, *Staatsblad*, No. 618. For a French translation, see *Textes législatifs série* 1938, No. 26, published by the International Institute of Agriculture.

(2) Base, 1927-29 = 100; corrected for seasonal variations.

(3) Figures for "Food and Drink."

imported were at about or below the average except in the case of barley and of cereal bye-products both of which were considerably larger. The average for the years 1933-37 of barley imports during the first nine months of the year was 541,000 tons; during January-September 1938 727,000 tons were imported. Wheat imports were also slightly above the average.

Meat imports were about the average weight. Mutton and lamb imports during January-September 1938 weighed 272,000 tons, the average for the same period for the years 1933-37 was 268,000 tons.

The fall in the prices of agricultural produce has been in some part offset by a decrease in the cost of fertilizers and feeding stuffs. The Ministry of Agriculture's Index (base, corresponding months 1911-13 = 100) of the prices of feeding stuffs fell from 127 in January to 117 in June and to 97 in November; fertilizers prices which had remained steady during the first half of the year at 94 fell to 93 in October and November.

Protection against the effect of falling prices is now afforded the United Kingdom farmer by various Government price guarantees and other assistance. This protection is however given only in respect of certain products and is less close for one product than for another. Thus at this time when prices of both wheat and barley have fallen heavily the position of the wheat-grower, who is guaranteed a minimum price of 10s. per cwt. for his produce—the present market price is less than half of this—is contrasted with that of the barley-grower, who, although entitled to a subsidy when the market price falls below 8s. per cwt., is not guaranteed a minimum price as his subsidy is less than equivalent to the price deficiency. The producer of fat cattle is entitled to a subsidy and his market is protected by quantitative import regulations closely related to the market situation; the sheep-farmer, on the other hand, has no subsidy and his market has been less closely protected by import regulations.

The weakness of the markets for sheep and barley is all the more serious as these two products are the main products of many farms on the light soil of eastern England. The farmers appealed to the Government for assistance, and in December 1938 the Minister of Agriculture announced measures of assistance for them. The barley subsidy is to be increased and the imports of mutton and lamb are to be closely regulated. These measures did not satisfy the farmers.

At the same time a Milk Bill introduced to extend and consolidate with important amendements, existing measures, was withdrawn by reason of strong objections, particularly from the English Milk Marketing Board (1).

In view of these difficulties the Government decided to reconsider its agricultural policy as a whole; and the new measures planned for milk, wheat, and poultry are being held in suspense for the present.

Trade agreement with the United States.

This agreement, signed in November 1938, highly important for the general economic situation, has but small direct effect on the position of the United Kingdom farmer. By the agreement the United States undertakes to lower import duties on a wide range of goods, mainly industrial, and the United Kingdom, to lower

(1) A description of this Bill and an account of the conditions and prices for the milk market for the contract year 1938-39 will be given in a subsequent number of this *Chronicle*.

duties on industrial goods, raw materials and food products. The main agricultural imports into the United Kingdom which are affected are wheat, maize, pig products and fruit. The 2s. per quarter import duty on wheat is removed; the United Kingdom farmer is protected against the effects of this change by the provisions of the Wheat Act, 1932 (1). Maize imports are to be free of duty till the end of December 1941; they were, however, previously free of duty till the end of December 1939 in accordance with the existing Anglo-Argentine agreement. Duty free entry of hams is to be continued and the United States' quota increased (2), and at the same time the 10 per cent. duty on lard is to be removed; the pig-breeder is protected against the effect of an increase of ham imports by the provisions of the Bacon Industry Act, 1938 (3) and a new measure has been introduced to adjust the position to the change in the condition of lard import (4). The duties on apples and pears are to be reduced; the new rate has, however, an incidence of over 15 per cent. ad valorem, and the United States has undertaken to call the attention of American exporters to the desirability of co-operating with the Empire Fruit Councils set up to plan shipments so as to avoid excessive fluctuations of supply and prices.

Of advantage to the United Kingdom farmer is the reduction of the duty on agricultural tractors imported into the United Kingdom.

Import regulations.

Mutton and Lamb. — Imports of mutton and lamb into the United Kingdom were first quantitatively regulated in accordance with the Ottawa Agreements Act of 1932; this provided for the limitation of supplies from foreign countries to given maximum quantities fixed from time to time as a percentage of those imported in corresponding quarters of the Ottawa Year. Further, since 1935 imports from British Empire countries have been regulated by agreements made from time to time between the United Kingdom and Australia and New Zealand, the two main Empire suppliers.

Now, in view of the bad position of the sheep-farmer in the United Kingdom, the Minister of Agriculture has, after consultations with the Australian and New Zealand Governments, decided that in future imports into the United Kingdom shall be regulated in the following way. Supplies from the Empire countries shall be regulated by the Empire Beef Council whose functions are to be correspondingly enlarged. This Council was set up in 1937 to consider Empire aspects of beef supplies to the United Kingdom and works in association with the International Beef Conference (5). The Council is to consider the mutton and lamb supply position as a whole (6). At the same time the Government itself is to regulate imports from foreign countries. For this purpose an order has been made providing that live sheep, mutton and lamb shall be imported into the United Kingdom only under licence (7).

(1) See the September 1938 number of the *Chronicle*, p. 437 and p. 42 of the present issue.

(2) The Dutch quota has been adjusted by agreement.

(3) See the September 1938 number of this *Chronicle*, p. 434 and p. 43 of the present issue.

(4) See p. 44.

(5) See the April 1938 number of this *Chronicle*, p. 214.

(6) In this connection was made the Ottawa Agreements (Importation of Wheat) Amendment Order, 1939 (S. R. and O. 1939. No. 5).

(7) Sheep, Mutton and Lamb (Import Regulation) Order, 1939 (S. R. and O. 1939 No. 4).

Home market regulations.

Wheat Levy and Subsidy. — The wheat-grower is guaranteed, by the provisions of the Wheat Act, 1932, a price of 10s. per cwt. He is entitled to receive from the Wheat Commission a subsidy to make good any deficiency in his returns due to the market price being lower than this; funds for this purpose are obtained by the Commission from a levy—"quota payments"—imposed on millers and importers of flour. In the year 1937-38 the market price received for wheat was officially ascertained to be slightly less than 8s. 5d. per cwt. At the end of 1938 the price had fallen to less than 4s. 5d. per cwt. In view of this the Wheat Commission has increased the quota payments due to it.

The good prices obtained for wheat at the beginning of 1937 had allowed the suspension of the payments, for the first time since the beginning of the scheme. In September 1937 they were reimposed at the rate of 2.4d. per cwt., and the rate has since been continually and rapidly increased (1) till at present it is 28.8d. per cwt. the highest rate ever fixed.

At the same time the maximum amount of wheat on which the Commission will pay a subsidy has been raised. For the season 1937-38 the amount was 25,000,000 cwt.; for the present season, 1938-39, the amount was first fixed at 30,500,000 cwt. but has now been raised to 33,000,000 cwt. (2). This latter figure is also the highest since the beginning of the system.

Oats and Barley Subsidy. — By the Agriculture Act, 1937, the grower of oats or barley was given the right to receive from the Government whenever the price of oats fell below 8s. a hundredweight, a subsidy equal to six times the deficiency in price or £1 per acre, whichever is less. This subsidy is payable not on each hundredweight sold but on each acre under oats or barley; and as the yield of oats and barley is about 14-16 hundredweights per acre the subsidy does not fully compensate the grower for the deficiency in price. Moreover the subsidy is based on the price of oats and is independent of the barley price.

Thus the barley-grower had less protection from the heavy fall in prices that has occurred in recent months, than had the wheat-grower.

Moreover a farmer could not receive both a deficiency payment under the Wheat Act and also a subsidy on his barley and oats acreage. Therefore, as many barley-growers also grow wheat on a large scale, many receive no subsidy at all on their barley acreage.

To assist further those farmers whose main corn crop is barley the Government propose to invite Parliament to increase the subsidy payable this year, from the 10s.

(1) See previous numbers of this *Chronicle*. Wheat (Quota Payment) No. 5 Order 1938, which came into force on October 16, 1938 fixed the rate at 24d. per cwt.; No. 6 Order 1938 fixing the rate at 28.8d. per cwt. came into force on November 13, 1938.

(2) Wheat (Anticipated Supply) No. 2 Order 1938 fixed the amount at 30,500,000 cwts; No. 3 Order 1938 raised it to 31,850,000 cwts.; and No. 4 Order, made in November raised it further to 33,000,000 cwts. The maximum amount on which a subsidy may be paid is fixed by the Wheat Act, 1932, as amended, at 36,000,000 cwt. See in this connection the *Chronicle* for January 1938, p. 58.

per acre, which, it is estimated, would be payable under present arrangements and conditions, to £1 an acre. This is regarded as an emergency measure.

The barley-grower had previously, and still retains, a further measure of protection in the undertaking given by the Brewers Society in 1936 to purchase each year a minimum quantity of 7,500,000 cwt. of home-grown barley and to increase their purchases *pari passu* with any increase in the production of beer over that in the year ending September 30, 1935. In the year 1934-35 the brewers purchased 7,458,000 cwt., in 1935-36, 7,729,000, in 1936-37, 8,189,000 and in 1937-38, 8,063,000 cwt. Over the same period the price paid rose from 8s. 1d. per cwt. to 11s. per cwt. Between 1936-37 and 1937-38 the amount purchased fell although the production of beer increased; the reason for this is that the 1937 crop of malting barley was insufficient to meet brewers requirements.

Bacon-pigs, Marketing Scheme Contracts. — In accordance with the provisions of the Bacon Industry Act, 1938 (1), the Pigs Marketing Board has fixed the terms of the yearly contracts for the supply of bacon-pigs, during the year December 1938-November 1939; 1,479,226 pigs were offered. The maximum number that might be put under contract in this first contract year was fixed by the law at 2,100,000. The number actually put under contract is less than the total offer in 1937, when the contract system of the marketing scheme then in operation was declared null and void by reason of the insufficiency of the total offer.

This deficiency resulted under the old scheme in a re-establishment of a free market in bacon-pigs. The new scheme requires, however, registered pig producers and registered bacon curers to buy bacon pigs only under long term contracts. The Bacon Development Board is empowered to grant special exemptions from this provision, and has in fact done so for the months of December 1938 and January 1939. The number of pigs that may be so bought is limited by the Board and the prices paid are to be 6d. per score lb. less than the contract price.

The basic price for the standard bacon pig sold under contract has, according to the Act, to average 12s. 6d. per score lb. in the first contract year. The price has in fact been fixed at 17s. 6d. per score for each of eight months of the year; in February and March it is, however, to be 13s. and in October and November 12s. per score.

The basic price is the price to be paid when the standard feeding ration costs 8s. 6d. per cwt. The actual price to be paid is to be varied in accordance with variations in feeding-stuff prices. From 1936 to the summer of 1938 the officially ascertained price of the standard feeding stuff ration rose rapidly; at the beginning of 1936 it was about 7s. 9d.; by the end of 1936 it was over 9s.; in 1937 it rose from 10s. to about 10s. 4d. and remained at about this figure till the summer of 1938.

The new scheme was therefore evolved when feeding-stuff costs were high, and the new price regulations show a greater improvement on the old when feeding costs are high than when these costs are low.

Since the summer of 1938 the price of the standard ration has however fallen rapidly and in December, the first month of the new contract it was 8s. 4d., that is lower than the standard and for January 1939 it was 8s. 1d. The prices per score of the standard bacon pig sold under contract in these two months were accordingly less than the basic price, 12s. 6d., and were 12s. 4d. and 12s. 2d. respectively.

(1) See September, 1938 number of this *Chronicle* p. 434.

The allocation of the contracts among bacon curers has given rise to objections. One of the functions of the new Bacon Marketing Board is to allocate, on the instructions of the Bacon Development Board, production quotas to bacon factories. The quotas for the contract year 1938-39 were based on the hypothesis that 2,100,000 contract pigs would be available, the number permitted by the Act. As only about 1,500,000 pigs were obtained on contract, each factory's allocation of contract pigs had to be reduced in proportion. Every curer was not entitled to retain all the contracts he was able to obtain; the Bacon Development Board aimed at an equitable distribution of the total supply of pigs among all the bacon factories. Two reasons made such an equitable distribution highly desirable; the first is that the subsidy, having the object of stabilising prices both for pig-producers and also for bacon-curers is related to contract pigs only; the second is that as costs depend to a large extent on the volume of throughput and as all curers are required to pay the same price for contract pigs, no curer should be more short of supplies than another.

The removal of the 10 per cent. duty on lard imports, required by the Trade Agreement with the United States of America, has affected the operation of the pigs and bacon marketing scheme. The Bacon Industry Act, 1938, provided for given bacon prices in the first three years of the scheme. Now an amendment Bill, introduced by the Government provides for an adjustment of these fixed prices to changes in lard prices. A "notional", or standard price of lard is to be established; 65s. per hundred-weight for the first contract period, 63s. for the second, and 59s. for the third. The Minister is then to ascertain actual lard prices; and if the ascertained price exceeds or falls short of the "notional" price the bacon prices fixed by the Act are to be decreased or increased by 1d. per hundredweight for each 1s. per hundredweight difference. These provisions relate only to bacon made from long contract pigs.

Fat Cattle Subsidy. — The subsidy on fat cattle continues to be paid at the new rates established by the Livestock Industry Act, 1937. The total payment during the first year of the new rates, which began in August 1937, was about £4,000,000; this is about the same as the yearly total of the subsidy paid in the preceding years,—a subsidy on fat cattle was first introduced by the Cattle Industry (Emergency Provisions) Act, 1934.

A change in the regulations governing the payment of the subsidy, was made in the summer of 1938. The regulations provided that fat cattle certified for subsidy should be divided according to whether they conformed to an "ordinary" or to a "quality" standard. These standards were defined by the reference to the description of the animal, i.e. its conformation, finish and ripeness; it was also provided that an animal should have an estimated killing-out percentage of not less the 54 for ordinary standard and of not less than 57 for quality standard. The requirement that "quality" animal shall have a higher killing-out percentage has now been abolished. Although this involves no lowering of the effective standards of eligibility for subsidy, the new regulations will allow a greater proportion of the total animals on which a subsidy is payable to give a right to the higher quality subsidy. It is estimated that this will increase subsidy payments to £4,300,000 a year. The maximum subsidy allowed by the Act is £5,000,000 a year.

SWITZERLAND

During the five months July to November 1938 imports of industrial products fell below the level of 1937 while those of agricultural products rose by 3.33 per cent. Exports in general showed a decrease, less marked in industrial than in agricultural products.

Period	Imports				Exports			
	Industrial products		Agricultural products		Industrial products		Agricultural products	
	Thousand francs	Index numbers	Thousand francs	Index numbers	Thousand francs	Index numbers	Thousand francs	Index numbers
January-June 1937 .	611,665	100 —	318,095	100 —	529,646	100 —	49,276	100 —
January-June 1938 .	522,940	85.49	258,471	81.25	561,452	106.01	56,900	115.65
July-November 1937 .	508,339	100 —	205,425	100 —	524,492	100 —	59,920	100 —
July-November 1938 .	461,776	90.84	212,256	103.33	520,848	99.31	52,948	88.36

The restrictions on imports underwent no modification, for the Department of Economic Affairs rejected all attempts to extend them or to re-introduce any which had been abolished. The only exception is the duty on asparagus in excess of the quota, which was raised from 35 to 60 francs (1). The course of prices in Switzerland was affected quite perceptibly by the decline in world prices during the early months of the year and their gradual rise from the beginning of June. After showing some decline, retail and wholesale prices in Switzerland have now returned to practically the same level as before the depreciation of the currency. Between January and June 1938 the index-number of wholesale prices fell from 113.6 to 110.6 (September 1936 = 100). The rise caused by the depreciation was therefore in the proportion of 10.6 per cent. The index-number of the cost of living for the same period (January-June 1938) also showed a slight decline, falling from 106.2 to 105.4.

Cereals.

The greater part of the cost to the Confederation in respect of the country's wheat supply is incurred in the payment of a subsidy on the price of home-grown wheat, that is to say, the difference between the price guaranteed to growers and the actual price paid by millers to the Confederation. While the purchase price is fixed in accordance with Art. 6 of the wheat law, the selling price is based on the average net price of foreign wheat of equivalent quality, delivered free at the Swiss frontier, duty paid.

(1) XVIIIth report of the Federal Council to the Federal Assembly on measures of economic protection against foreign competition. *Feuille fédérale*, No. 35 (August 31, 1938).

Should world prices decline and the purchase price of home-grown wheat remain unchanged, the cost of the subsidy would increase. When, in July 1938, the accentuation of the decline in the world prices of wheat betokened excessive reductions in the prices of Swiss flour and bread by the middle of the following month, the Federal Council for a moment contemplated reducing growers' prices. It was evident, however, that such a course would signify the abandonment of the principal object of the wheat policy namely, the expansion of cereal cultivation with a view to relieving the congested state of the livestock and milk markets and to increasing grain production.

The Federal Council was thus led to examine the possibility of increasing the customs duties on wheat from 0.60 to 3 fr. per quintal. This increase of 2.40 fr. per quintal on wheat and rye may increase the receipts of the State by 10 million fr. annually. The increase in the duties would justify an increase of 2.4 centimes per kg. in the price of bread; this, however, will not be necessary since the heavier duties will be largely counter-balanced by the decline in prices. There will be no increase in wheat prices unless the market is disturbed by unexpected events. Should quotations on the world market strengthen and thus tend to raise the price of bread wheat, the Federal Council will consider to what extent the duty should be reduced in order to avoid an increase in the price of bread (1).

In view of these considerations the Federal Council by a Decree of August 13, 1938, raised the import duties on wheat and rye by 2.40 fr. per quintal (2). The supplementary law of September 13, 1938, fixed the purchase prices of home-grown wheat of the 1938 harvest at the levels of the preceding year, namely: 36 fr. per quintal for type standard I; 37.50 fr. for type standard II; 38.50 fr. for type standard III; and 28.50 fr. for rye (3).

The provisions of the Law of November 5, 1937 on compensation to millers milling whole-meal flour was modified as follows by a Federal decree: the amount of the compensation is to be fixed periodically by the Department of Economic Affairs in accordance with the conditions of the breads cereals market (4).

Fruits and potato market.

The improvement in the financial position of the State Alcohol Monopoly which began in 1936-37, was maintained in the following year, the profits of each year amounting to approximately 5 million fr. During the 1937-38 season, however, it was necessary to liquidate stocks amounting to 1,615,620 fr. of which stone-fruit brandy represented 1,426,117 fr. Most of this brandy was transformed into fuel and industrial alcohol. The result may be regarded on the whole as satisfactory in view of the exceptional apple harvest of 1937. The Monopoly succeeded in limiting its acquisitions of brandy to such an extent that the expenditure for brandy and alcohol derived from stone-fruit amounted to only 1,644,543 fr. as compared with the budget estimate of 5,770,000 fr. To attain so satisfactory a result the Monopoly encouraged in all possible ways fruit utilization other than distillation.

(1) *Feuille fédérale*, No. 36, (September 7, 1938). — (2) *Recueil des Lois fédérales*, No. 29 (August 17, 1938). — (3) *Recueil des lois fédérales*, No. 32 (September 14, 1938). — (4) *Recueil des lois fédérales*, No. 25 (July 13, 1938).

Sales did not realize the amount estimated in the budget but receipts from the taxes on specialities, direct sales and monopolies exceeded the estimates.

By a Decree of August 26, the Federal Council authorized the Alcohol Monopoly to take steps to reduce brandy production by granting subsidies for the promotion of fruit exports and for the maintenance of the fruit supply for home consumption. The Monopoly was also empowered to limit distillation (1).

In accordance with the arrangement made by the German-Swiss Commission, 70,000 quintals of perry pears of the 1938 harvest were exported to Germany and a further 80,000 converted into concentrated fodder juice.

The Federal Council decreed that apples and pears (whether fresh or dried), apple- and pear-juice and dried fruit residue may not be exported unless accompanied by a declaration that the quality of the goods is approved by the Fruit Union (2).

The Council has also given some attention to the improvement of fruit-growing. By a Federal Decree of November 12, 1938, the Alcohol Monopoly and the Department of Agriculture were authorized to take during the winter of 1938-39 and spring of 1939 such measures as would render possible the cultivation in orchards of table fruit and good cider fruit. Courses of instruction will be organized and model orchards set up. Expenditure for the re-conditioning of orchards will be refunded to the cantonal agricultural stations entrusted with the direction and supervision of the work. Subsidies will be granted for the encouragement of grafting (3).

The utilization of potatoes harvested in 1938 is provided for by a Federal decree (4) empowering the Alcohol Monopoly to organize purchases of home-grown potatoes. The Monopoly also organizes and subsidizes their transport from the producing areas to the centres of consumption. The basic prices were fixed at 7-10fr. per 100 kg., according to quality, with a possible increase for those delivered after November 15, 1938.

Livestock.

The Federal Department of Economic Affairs has taken steps to encourage sales of livestock. They include a regulation entitling exporters to a premium not exceeding 25 per cent. of the cost price, as shown on the receipt, for bulls, cows and heifers bought and exported between August 22 and November 30, 1938. The exports, quality and price of the animals were subject to approval. Extraordinary subsidies were granted to stock-breeding associations for the purchase of male animals of pure strain during the 1938-39 breeding season. Facilities are granted for the transport by railway of cattle, sheep and goats intended for breeding, stock or slaughtering; for the transport of horses bought at certain fairs in stock-breeding districts, and of mutton sheep from mountain regions (5).

The reduction of 50 per cent. on railway transport charges for livestock was extended to January 1, 1939 (6).

(1) *Recueil des lois fédérales*, No. 30 (August 31, 1938). — (2) *Ibid.*, No. 32 (September 14, 1938). — (3) *Ibid.*, No. 40 (November 16, 1938). — (4) *Ibid.*, No. 30, (August 31, 1938). — (5) *Ibid.*, No. 28 (August 10, 1938). — (6) *Ibid.*, No. 40 (November 16, 1938).

Milk.

As we have seen the Department of Economic Affairs wishes to reduce milk production as far as possible and it therefore issued an Order requiring commercial producers of milk to contribute to the guarantee funds of the Central Union of Swiss Milk Producers (1). Exemptions are granted in the following cases: farmers who produce during the year 1938-39 less than 800 kg. of milk for manufacture per hectare of cultivated land; farmers who produce during the same year per hectare of cultivated land between 800 and 1400 kg. of milk for manufacture, provided that this amount does not exceed the average yield per hectare in the two preceding years; farmers who produce during the year 1938-39 less than 3000 kg. of milk for manufacture provided that the milk conformed to the Swiss regulations for the delivery of milk.

The tax due under Art. 1 of the Order of April 23, 1937, regulating the collection of taxes on liquid milk, was raised from 0.5 to 2 centimes (2).

FRENCH COLONIES, PROTECTORATES AND MANDATED TERRITORIES

With a view to directing the colonial trade currents towards the mother country, a Decree-law of May 24, 1938 (3), provides that, as an exception to the basic law of April 13, 1938 regarding the colonial customs system, the French Government is empowered to impose preferential export duties on colonial products.

Certain trade agreements concluded between France and other countries contain clauses affecting various colonial agricultural products.

NORTH AFRICA

The wheat harvest reached the average in Algeria, being nearly 9 million quintals. In Tunisia, especially the northern districts, it was satisfactory. The Moroccan harvest was estimated at about 5,845,000 quintals; it was thus slightly larger than that of 1937 and substantially larger than that of 1936. The yield of soft wheat was average and the total crop was above the average, but both the yield and the total crop of hard wheat, the variety preferred by native growers, were poor. Barley, which competes with hard wheat as a native foodstuff, gave fair results in Morocco, but a mediocre outturn in Algeria and Tunisia. The Moroccan maize harvest was moderately good. While the spring drought had no serious effect on cereals, even on maize, it had serious effects on the fodder crops, and the forced slaughtering which was necessary caused a decline in livestock prices in the spring.

(1) *Recueil des lois fédérales*, No. 30 (August 31, 1938). — (2) *Ibid.*, No. 30 (August 31, 1938).

— (3) *Journal officiel*, May 24 1938.

Wine production was plentiful. In Algeria alone it was estimated at 21.5 million hectolitres, a figure exceeded only by the phenomenal production of 1934. Stocks exceed 2 million hectolitres.

The olive harvest in Tunisia was, generally speaking, mediocre.

Treaty with Great Britain regarding Morocco. — In July 1938 France concluded a treaty with Great Britain replacing the Trade and Navigation Convention of 1856. This Convention was brought to an end in July 29, 1937 by an agreement which abolished British capitulations in Morocco.

General price policy. — The general price policy tends to become less rigid. The abolition of the rule that wholesale prices may not be raised without permission applies to Algeria, together with the qualifications involved in the abolition.

Wheat. — The minimum proportion of North African hard wheat which French manufacturers are required to use in the preparation of semolina, food pastes, sea biscuits and similar products is fixed at 65 per cent. (1).

In accordance with a Dahir of July 27, 1938 (2) the embargo on exports of hard wheat from Morocco has been raised.

The Decree-law of June 17, 1938 (3) relating to the reorganization of the Wheat Office (4) applies to Algeria.

In Algeria, as in the mother-country, (5) the growers' basic price of soft wheat was fixed by the Wheat Office at 204 francs and that of hard wheat at 205 francs per quintal. There are in Algeria various taxes on wheat similar to those in France.

In Morocco the Director of Economic Affairs fixed the mill price of soft wheat at 165 francs per quintal. As this includes transport and other charges, the growers' price is lower. Wheat prices are considerably higher in Algeria than in Morocco.

With a view to regulating the competition between French and Algerian semolina manufacturers, a committee of these manufacturers has been set up on which the mother country and the colony are equally represented (6). This Committee submits to the public authorities, for their approval, any modification or innovation that may appear advisable for the protection of the semolina market, for the better organization of the trade and, above all, for the reduction of the grinding capacity of the semolina industry.

Barley. — A Dahir of July 7, 1938, authorized the export from Morocco to France and Algeria of 200,000 quintals of malting barley during the 1938-39 season. (7) This figure is the same as that given in the Decree of June 1, 1938, which fixed the quotas to be admitted free of duty into France and Algeria from the French zone of the Sherifian Empire in the period June 1, 1938 to May 31, 1939.

A Dahir of July 21, 1938, authorizes the export to France and Algeria of a quota of 200,000 quintals of common barley, subject to an export duty (8).

(1) *Journal officiel*, November 25, 1938. — (2) *Bulletin officiel du Maroc*, August 12, 1938. — (3) *Journal officiel*, June 26 1938. — (4) See the analysis under "France" in the *International Chronicle of Agriculture*, 19 September, 1938. — (5) *Journal officiel*, September 2, 1938. — (6) *Journal officiel*, June 26 and July 28, 1938. — (7) *Bulletin officiel du Maroc*, July 8, 1938. — (8) *Bulletin officiel du Maroc*, July 29, 1938.

Fodder. — The export of fodder and straw from the French zone of Morocco was temporarily prohibited by a Dahir of July 22, 1938. (1)

Wine. — By a Decree of June 17, 1938, (2) a subsidy was granted to Morocco by the mother country for the relief of the wine market. (3)

WEST AFRICA

Customs system. — According to the basic law relating to the colonial customs system, dated April 13, 1928, West Africa belongs to the so-called non-assimilated colonies, but France has undertaken to effect a gradual assimilation of West Africa with the mother country in respect of customs. A decree-law (4) was therefore issued entrusting to the central power until December 31, 1939, the responsibility of establishing customs tariffs for West Africa.

Oils. — A rebate is granted on groundnut oil exported to foreign countries, protectorates and mandated territories (5). This rebate may not exceed the export duty. It is fixed at 14 francs per 100 kilos net (6).

INDOCHINA

The general index of wholesale prices at Saigon after a steady interval during June, declined in July, August and September. There was an increase in the price of rice on the same market in August. Maize prices tended downwards while rubber after rising in June, July and August, declined in September.

The proportion of the rice exports of Indochina taken by France exceeded 50 per cent. in 1936 but fell to 43 per cent. in the following year. Nevertheless, France continues to encourage exports of this product to foreign countries. The export duty on rice was reduced.

(1) *Bulletin officiel du Maroc*, August 19, 1938. — (2) *Journal officiel*, June 29, 1938. — (3) See the measures for the relief of the Moroccan wine market, under "French Colonies" in the *International Chronicle of Agriculture*, May 1938. — (4) *Journal officiel de la République française*, May 25, 1938. — (5) For oils exported to France and Algeria and the quota of West African oils sent to these countries, see "French Colonies" in the *International Chronicle of Agriculture*, May 1938. — (6) *Journal officiel de l'Afrique occidentale française*, September 3, 1938.

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MONTHLY BULLETIN

OF

AGRICULTURAL ECONOMICS AND SOCIOLOGY

INTERNATIONAL ORGANIZATION OF THE CACAO MARKET ⁽¹⁾

SUMMARY: Production and consumption. Antwerp International Congress. Brussels International Conference. Trinidad Planters' Plan. London Monetary and Economic Conference. British Memorandum of 1934. Recent developments. Price and trade statistics for cacao.

Production and consumption.

At the beginning of the 20th century the output of cacao fluctuated around one million quintals. Almost the whole of the cacao came from the American continent, with the exception of 70,000 or 80,000 quintals from S. Thomé and about ten thousand quintals produced elsewhere.

From then on the relationship between American and African production changed in favour of the latter. In Africa there are two types of plantation: S. Thomé, representing the European type of cultivation with modern methods and large properties, and the Gold Coast, with an almost entirely native type of cultivation on a village basis and organized in small properties. In the latter area Accra cacao is grown, which is very important in international trade.

In the years 1909-1913 America's output increased to 1,450,234 quintals. The most important producing countries were Ecuador with 375,544 quintals, Brazil with 316,441, Trinidad and Tobago with 225,858, the Dominican Republic with 200,114 and Venezuela with 160,525. During the same period the African output reached 801,767 quintals, the two countries contributing most to this total being S. Thomé and the Gold Coast with 354,128 and 349,052 quintals respectively.

The margin between American and African output decreased still further during the War: compared with an American production of 1,720,112, Africa produced 1,234,298 quintals. The main contributions to this total came from the Gold Coast with 740,788 quintals, S. Thomé with 318,433 and Nigeria with 98,883 (during the period 1909-1913 the last named country only produced 33,702 quintals).

During the years 1919-1921 the relationship between the output of the two continents changed completely; while the African output reached 2,079,043 quintals (of which the Gold Coast contributed 1,470,369 and Nigeria 205,954, S. Thomé remaining at 322,440), American output was only 1,804,112 quintals.

This trend has since been accentuated. During 1927-1928 and 1931-1932 production reached 3,530,000 quintals in Africa (2,373,000 from the Gold Coast)

⁽¹⁾ *Volume préparatoire du Congrès international des fabricants de chocolat et de cacao d'Anvers.* 1930, p. 129.

and only 1,940,000 quintals in America, and in 1936-37 4,990,900 quintals were produced in Africa (2,731,000 from the Gold Coast) and 2,300,000 quintals in America (1).

Several varieties of the genus *Theobroma* are known, but of these only the *Theobroma Cacao Linnaeus*, is cultivated. There are two varieties of this: the *Criollo* and the *Forastero*. The first is less productive and more delicate: it yields a high quality cacao. *Forastero* is stronger, more productive and less susceptible to disease; it yields cacao for ordinary consumption and supplies by far the greatest part of the world output.

Originally *Criollo* predominated but *Forastero* has steadily overhauled it and its output has now reached very high figures. *Accra*, which is so important in world trade, is a variety of *Forastero* (2).

On the international market there was generally equilibrium between the production and consumption of this product before the War, but during the War this was destroyed, chiefly on account of the fall in imports of European countries.

After the War there was a brisk recovery in demand, which later fell off somewhat. In 1925 demand again increased, reaching its highest point in 1927.

During this period prices rose, owing to natural factors and agreements between the leading business organizations of West Africa, which were endeavouring to raise prices by restricting supply.

The Accra Pool was founded as a result of these agreements. At first it enjoyed an increase in prices, but in the end end suffered heavy losses owing to reduced consumption and the necessity of placing its stocks of cacao on the market after some time, to prevent them deteriorating.

The fall in prices which had at first been caused by the disparity between consumption and a production greatly stimulated by the rise in prices between 1925 and 1928, increased with the great depression (3).

Antwerp International Congress.

At the International Congress of Chocolate and Cacao Manufacturers at Antwerp in 1930, a majority of countries agreed as to the desirability of setting up an international Office of chocolate and cacao manufacturers. All the principal countries gave their general support (4). Further, several members advocated that one of the functions of the Office should be an international sales campaign (5).

(1) *International Yearbook of Agricultural Statistics*. International Institute of Agriculture, Rome, 1919-21, p. 18; 1937-38, p. 322.

(2) *Volume préparatoire* cited, p. 95.

(3) Klopstock F. — *Kakao: Wandlungen in der Erzeugung und der Verwendung des Kakaos nach dem Weltkrieg*. Leipzig 1937, pp. 105-110.

(4) *Compte rendu officiel du Congrès international de fabricants de chocolat et de cacao*. Antwerp, 1930, p. 113.

(5) *Volume préparatoire du Congrès*, 1930 cited pp. 313, 317, 322 and 326.

The Congress approved the statutes of this Office, which was to study all questions relating to the chocolate and cacao industry, to solve problems of common interest, to suggest solutions to the national associations, and to collect and circulate all information of interest to the cacao and chocolate manufacturers and their associations. It was to ensure that its decisions were put into effect as far as possible ⁽¹⁾.

As we have said, several of the delegations recommended the launching of a publicity campaign. The representative of the Swiss Cacao Manufacturers Syndicate emphasized the need for first examining methods of collecting the annual funds for this campaign, and he pointed out that the whole amount needed by the world chocolate industry for this purpose would have to be calculated and the international distribution of advertising expenditure on chocolate goods studied. A tax of a pound sterling on each metric ton of cacao harvested in countries producing cacao beans might be levied. A contribution might also be asked from each chocolate manufacturer proportionate to his turnover, or even to the number of workers employed in his factory each year; but all such measures offered very great difficulties ⁽²⁾.

The British industrialists were not convinced of the need for the Office, but did not declare themselves against it if its role was to be merely advisory. As regards international publicity to increase consumption, that was of the greatest interest to manufacturers, but there were two great difficulties in carrying it out: (a) obtaining the necessary funds and (b) apportioning such funds. The British members pointed out that attempts to set up a national publicity pool had always failed, partly because no equitable principle for redistributing contributions could be found. The difficulties in the way of financing an international advertising campaign which the participants would be unable to supervise would be vastly greater, if not insurmountable. Advertising called for heavy expenditure and therefore large resources. Without this the plan would not give an adequate return. Nevertheless, the British members did not take any definite decision ⁽³⁾.

Brussels International Conference.

In 1932 at the request of the International Office of Chocolate and Cocoa Manufacturers at Brussels, the Belgian Government called an international conference of official delegates of countries producing cacao beans. The main object was to combat the depression from which cacao planters were suffering by establishing prices giving a normal return to the planters and traders of cacao beans. The method proposed was to create an increase in demand by an international advertising campaign in support of cacao products, while keeping the sale price of these products as low as possible.

The conference met on September 12, 13, and 14, 1932. It concluded that such a campaign was desirable, and prepared the preliminary draft of an

⁽¹⁾ *Compte rendu du Congrès de 1930* cited, p. 186.

⁽²⁾ *Volume préparatoire du Congrès international*, 1930, cited, p. 326.

⁽³⁾ *Volume préparatoire du Congrès international*, 1930, cited, p. 324.

international convention which the Belgian Government was to submit to the various States, requesting their views and proposals. The Belgian Government was then to re-summon the conference as soon as possible so that a definitive plan could be drawn up and submitted to the interested States for signature (¹).

In the preliminary draft the contracting parties undertook to form an international pool for organizing, subsidizing and supervising international publicity for cacao.

By international publicity was understood (1) all measures aimed at developing the use of products based on cacao (publicity in the strict sense); and (2) all technical and scientific research to improve cacao growing.

The international publicity fund is to be formed by levying a uniform payment on all cacao beans on leaving the signatory countries producing them. This payment was to be levied by the customs offices and be equivalent to one gold pound sterling per metric ton of exported cacao beans. The levy was to be paid either by the planters separately, or by various intermediaries, before permission to export could be obtained. It might be paid by means of six months bills whose issue would be governed by special regulations.

This rule was made to prevent the charge falling on the planter, as the exporter might be tempted to lower the price paid to the planter by the amount of the levy. The exporter might be afraid of not recovering the amount of the levy or of having to advance it over a considerable period before recovering it. Under the rule adopted the exporter would be authorized to pay the levy before exportation, by means of six months bills. It would be invoiced separately by the various exporters and intermediaries in such a way that its incidence fell on the manufacturers of products based on cacao. The exporter, therefore, would not in fact pay the levy until he had realized the price of the cacao plus the amount of the levy. Thus, as the exporter as a rule gets paid after three months at the latest, and very frequently at the time of shipment, it can be said as a general rule that the exporter would on an average also gain three months interest on the amount of the levy.

The draft plan added that when one of the signatory countries producing cacao beans had factories manufacturing cacao beans on its own territory, the competent authorities would levy the payment on the same basis before the cacao beans might be manufactured in these factories.

The levies paid to the International Office would form the International Publicity Fund administered and directed by the International Office on its responsibility and under the supervision of the contracting States.

The funds at disposal each year would be distributed as follows:—

A. — Subvention for publicity properly so called in the different countries according to the possibilities of developing the use of products based on cacao, whether or not these countries were manufacturers of products based on cacao.

1. The share of this payment received by countries possessing such industries would be based mainly on national consumption for the preceding

(¹) Conférence internationale du cacao. *Compte rendu officiel*. Brussels 1932, pp. 7, 147 and 155.

year. These sums would be calculated on the basis of copies of official statistics, certified by the competent authorities of the country as conforming to the originals and indicating:— (a) The quantities of cacao beans produced, imported, exported, re-exported, put in stock, taken out of stock or entering the country in transit, during the preceding year; (b) The quantities of different types of products based on cacao or derived from cacao beans which have been imported, exported, re-exported, put in stock or entering the country in transit, during the preceding year.

2. The share of countries not producing products based on cacao would be a percentage fixed by the International Office on the basis of the probable consumption in these countries.

B. — Reserve Fund for the International Office to organize and administer, or subsidize, technical and scientific research of general interest.

C. — Reserve Fund for general organization, administration and supervision of publicity by the International Office.

The International Office would be authorized to deduct annually 10 per cent. of the funds for publicity, with the object of organizing and administering, or of subsidizing, technical and scientific research of general interest aimed at improving cacao growing.

If a national association of cacao planters considered that it was not worth while to devote any part of the resources at disposal to technical and scientific research affecting it or the colonies of the countries in which it was established, that association's share will be increased by the proportionate sum which had not been allotted to technical and scientific research. The International Office would, however, first ask the opinion of the Government concerned.

The International Office would be responsible for the organization, administration and supervision of publicity, and decide as to its general lines.

The Belgian Government submitted the results of the Conference for consideration by the Governments concerned.

In a note published in May 1933 the British Government, whose colonies export a large part of the world output, raised several objections against the plan in question and suggested that in any case the moment had been badly chosen for conducting an international publicity campaign chiefly on account of the monetary restrictions in force and in general of the limitations on international trade ⁽¹⁾.

After this, the idea of carrying out the scheme in question was abandoned.

Trinidad Planters' Plan.

Another attempt at international action to improve the cacao position began early in 1933.

The Trinidad planters put forward a plan for regulating the cacao market. The Trinidad Chamber of Commerce submitted this to the British Colonial Secre-

⁽¹⁾ Klopstock, *op. cit.*, p. 128.

tary with a view to promoting a conference of representatives from the producing countries to consider the plan. With the aim of raising prices of Accra to some specified level, this conference, which is usually known as "Z", sought to induce the Governments of producing countries to build up stocks from part of the surplus output. The stocks, which would be placed to the account of an organization created by the conference, would be drawn upon by the Governments when prices rose above the basic level. This plan was not carried out, but it led to an investigation of the subject by the London Monetary and Economic Conference and by the British Government ⁽¹⁾.

London Monetary and Economic Conference.

The sub-committee of the London Monetary and Economic Conference, which was instructed to study the co-ordination, production and sale of cacao, submitted a report which was approved by the conference. In its report the sub-committee suggested that the position of the cacao market should be properly studied after the conference, account being taken of present production and consumption and existing stocks of various qualities. The sub-committee invited the countries most interested in cacao production to consider the matter and as soon as possible to submit to the General Secretary of the Conference their remarks and proposal as to the convening of a meeting of experts to study the organization of the production and international trade in raw cacao ⁽²⁾.

British Memorandum of 1934.

In 1934 after consulting the Governments of the colonies interested and the representatives of the cacao trade and industry in the United Kingdom, the British Government drew up a memorandum making use of a report which it had submitted to the London Conference. This very interesting memorandum begins by sketching the development of the production and consumption of cacao over a period of many years, and proceeds to point out the dangers of the situation for the future. The memorandum shows that prices have fallen to very low levels for Accra, about a third in terms of sterling and a quarter in terms of gold, of the prices ruling immediately before the War. It attributes this fall in part to the general fall in prices and in part to the size of the stocks held.

Stocks in consuming countries plus quantities afloat at the end of September were 160,000 metric tons in 1926, 218,000 in 1927, 205,300 in 1928,

⁽¹⁾ For further information see Klopstock, *op. cit.*, p. 121.

⁽²⁾ *Rapports approuvés par la Conférence*. July 27, 1933, League of Nations. London Monetary and Economic Conference C. 435 M. 220 1933 II.

223,700 in 1929, 239,800 in 1930, 222,300 in 1931, 232,700 in 1932 and 310,000 in 1933.

The British Government considers that the first step away from this position and towards a rise in prices is more co-operation between the cacao sellers, with a view to an agreement on selling prices. Sellers generally act independently, and their position is much weaker than that of buyers. The latter, apart from a limited number of small buyers, are represented by a few large manufacturing concerns who as a rule hold large stocks and who are therefore in a position to hold off the market for a substantial period.

One of the objects of a sellers' agreement should be to fix a basic price. As Accra is the most important grade of cacao, and as the prices of other cacaos depend to a large extent on the prices of Accra at Liverpool, the agreement should base prices on that of Accra.

At the same time the British Government expressed the view that any very great increase in prices would not be of general advantage, since it would limit consumption and stimulate production in West Africa.

As regards the proposal for active co-operation between producers in different countries, the memorandum suggested that this would be facilitated by forming a small international organization to look after production and, with the assistance of the principal consuming countries, consumption. The function of this body would be to watch closely increases in production and stocks and the course of prices, to advise the Governments concerned if there were indications that production was at an excessive rate and to discuss measures for rectifying the situation. It might also conveniently collect information regarding customs tariffs in the consuming countries, import prohibitions and restrictions and all measures tending to reduce the consumption of cacao. Thus producing countries would be in position to decide whether it was desirable to make representations to consuming countries with undue restrictions.

If the measures proposed were not adequate to ensure reasonably remunerative and stable market prices, the British Government thought that the growers themselves—if well enough organized—or the governments concerned, might be asked to form a joint fund for holding stocks off the market until they could be absorbed. This fund would be financed by a levy on cacao exports. Naturally there would be an element of speculation in operating this fund, unless there were some assurance that future production would be kept down to a figure allowing for the absorption of surplus stocks within a reasonable period. The British Government would be very reluctant to invite British producers to subscribe for such a purpose if it did not receive a formal assurance that all countries in which an increased output is possible had undertaken to limit production in accordance with an agreed programme over a period of years ^(*).

(*) Gordian, "Periodical devoted to the cultivation, trade in and manufacture of cocoa, sugar and related products". Hamburg. March 12, 1934, p. 20.

As a result of the memorandum the calling of a conference was considered to discuss the question of the cocoa market, but although it was announced several times as about to take place, it has not met so far ⁽¹⁾.

Meanwhile, the prices of this product, which had stayed at a low level during 1933 and 1934, showed a distinct rise during 1936 and up to the beginning of 1937. *Accra* which was quoted in London at 23/8 (yearly average) per 112 pounds (50,802 Kg.) in 1933, 22/10 in 1934 and 23/3 in 1935, rose progressively in 1936 from 23/6 in January to 28/- in June, to 33/7 in September, to 50/7 in December, to 55/7 in January 1937, to fall again after the general recession to about 35/- in June and September and to 25/7 in December ⁽²⁾.

Recent developments.

The 1937-38 season opened with the formation of a Buying Cartel of the principal European exporters of West African cocoa. The Gold Coast planters at once opposed it by boycotting sales ⁽³⁾.

The agreement between exporters was suspended from April to October, the date which had been fixed for publishing the report of a commission of inquiry, appointed by the British Colonial Secretary, on the position of the cocoa market in West Africa ⁽⁴⁾.

At the same time, the planters' boycott ended, having lasted about six months, and the exportation of cacao from the Gold Coast was controlled by export permits. At the end of the season this system ceased too.

Despite the sellers' boycott and the system of export permits, the movement of prices in 1938 was not favourable. For *Accra*, the season opened with a price of about 30/- per cwt. in April; when boycotting ceased it fell to 25/- and by the end of May to 18/-. It then recovered somewhat and reached from 23/- to 25/- during the last three months of the season ⁽⁵⁾.

The British Commission of Inquiry which has just published its report on the cacao position in West Africa denies that buyers caused the fall in cacao prices by the agreement which we have just mentioned; this fall coincided with a general depression of prices on the world markets. It recognizes, however, that such an organization lays itself open to accusations of this kind.

The Commission proposes a fresh solution. The agreement between the buyers should be broken off, but producers should be organized on the model of the British Agricultural Marketing Boards. The Commission also expressed the view that West Africa alone could raise world prices only very little. The possibilities of a world agreement must therefore be studied ⁽⁶⁾.

⁽¹⁾ Gordian, February 25, 1935, p. 16.

⁽²⁾ *International Yearbook of Agricultural Statistics* cited, 1937-38, p. 833.

⁽³⁾ *Neue Zürcher Zeitung*, October 27, 1938.

⁽⁴⁾ *The Economist*, April 30, 1938.

⁽⁵⁾ *Neue Zürcher Zeitung*, October 27, 1938.

⁽⁶⁾ *The Economist*, October 29, 1938.

Price and trade statistics for cocoa.

Below is shown the movement of average prices over the years 1913-37 for Accra f.f. in London (spot, including import duties) in shillings per cwt. (50.802 kg.) ⁽¹⁾.

1913	59/11	1931	24/8
1925	45/8	1932	26/9
1926	52/10	1933	23/8
1927	72/9	1934	22/10
1928	61/2	1935	23/3
1929	47/10	1936	31/0
1930	38/1	1937	38/11

The following table shows quantities imported and exported on the different continents during the periods 1909-13, 1923-27, 1927-31 and during the year 1936:—

Exports and imports by continents from 1909 to 1936:

Yearly average in quintals.

	1909-1913 ⁽¹⁾		1923-1927 ⁽²⁾	
	exports	imports	exports	imports
Europe	263,000	1,864,000	206,000	2,864,000
U. S. S. R.	—	41,022	—	23,927
North and Central America	363,000	640,000	463,000	1,925,000
South America	1,097,000	57,000	1,415,000	104,000
Asia	60,000	17,000	50,000	22,000
Africa	817,000	2,000	3,052,000	4,000
Oceania	9,000	7,000	34,000	58,000
	2,609,000	2,628,000	5,220,000	5,001,000

	1927-1931 ⁽³⁾		1936 ⁽³⁾	
	exports	imports	exports	imports
Europe	129,000	3,041,000	85,000	3,963,000
U. S. S. R.	—	40,400	—	70,600
North and Central America	489,000	2,001,000	376,000	3,032,000
South America	1,391,000	144,000	1,752,000	160,000
Asia	54,000	28,000	47,000	34,000
Africa	3,396,000	8,000	5,079,000	12,000
Oceania	32,000	50,000	22,000	81,000
	5,491,000	5,312,000	7,361,000	7,353,000

⁽¹⁾ *International Yearbook of Agricultural Statistics, 1930-31, p. 373.* — ⁽²⁾ *International Yearbook of Agricultural Statistics, 1931-32, p. 379.* — ⁽³⁾ *International Yearbook of Agricultural Statistics, 1937-38, p. 542.*

F. ARCOLEO

⁽¹⁾ Figures taken from *International Yearbook of Agricultural Statistics*, volumes for 1928-29, 1932-33 and 1937-38.

LAND SETTLEMENT IN FINLAND ⁽¹⁾

SUMMARY:— Position before settlement. — Land settlement organizations. — Problem of tenant farming. — Problem of the landless farm labourer. — Settlement on State lands. — Loans for dwellings. — Farming of new lands. — Preserving the settlements. — Results of land settlement.

Position before settlement.

As a result of social developments in the 19th Century, farmland in Finland was badly distributed at the opening of the 20th Century, and the State took measures to alter this position in favour of the agricultural proletariat. Thus internal land settlement began in 1900.

As in most of Europe, the population increased fairly rapidly, rising from 1.1 million in 1815 to 3.3 millions in 1915, that is threefold. Owing to the land system, however, the number of properties did not increase at the same rate, so that the increase in population resulted in larger numbers of tenant-farmers and agricultural workers.

In 1901 there were 33 million hectares of agricultural land, of which 13.1 million hectares belonged to the State, 0.4 millions to communes and parishes, 17.3 millions to owner farmers and 1.2 millions to persons not engaged in agriculture. Subtracting the State lands from the total area, 19.9 million hectares remained, 8.7 of which were occupied by properties of less than 250 hectares, the rest having properties of over 250 hectares.

In the same year the number of rural families was 478,100 of which only 110,600 (23.1 per cent.) had full ownership of their land. About 160,500 (33.6 per cent.) rented their land or held it in métayage and 207,000 (43.3 per cent.) had no rights in the land at all. Of the farmers and métayers 100,700 owned less than 3 hectares. These figures include forest and uncultivated land as well as cultivated lands. The rural population was then 2,171,000 of which 1,547,000 (71.2 per cent.) lived by agriculture. Of this farm population, which needed land more than any other class, 604,000 persons (39 per cent.) were owner farmers, 352,000 (22.8 per cent.) were tenant farmers and 591,000 (38.2 per cent.) were farm labourers.

State intervention was therefore needed to improve the lot of both tenant farmers and labourers. Land settlement would solve the problems of tenant farming and métayage and enable agricultural workers to acquire land, and also assist small farmers and agricultural labourers to erect buildings on their lands.

⁽¹⁾ Report supplied to the International Institute of Agriculture by the Finnish Ministry of Agriculture.

Land settlement organizations.

There was no official organization in Finland dealing specifically with land settlement until 1906, when the post of land settlement inspector was created. The inspector dealt with all matters relating to land settlement, which included supervising the work of the communes in this respect. In 1918 a central organization was set up for the general administration of land settlement, forming an independent section of the Ministry of Agriculture. It was completely reorganized at the beginning of 1938 under the name of Land Settlements Department of the Ministry of Agriculture, all operations relating to land settlement being centralized with it.

This department supervises the work of the land settlement inspectors, each of whom is allotted a settlement district. The country is at present divided into twenty such districts. The rural communes have supported the work from the outset, and since 1919 each has had a land settlements committee. Half of the committee members must be tenants or owners of farms formed for land settlement. The work of these committees is extremely useful. They assist and give advice to farmers who do not own their land, help and supervise the settlers and furnish the competent authorities with their knowledge of local conditions. The land settlement inspector gives advice to the committee of his district and supervises its work, while he also advises and assists the settlers. He also carries out the instructions of the Land Settlements Department of the Ministry of Agriculture. For example he surveys lands to be bought for settlement and draws up plans for settlement.

In addition to these permanent organizations, there are *ad hoc* settlement commissions to carry out the settlement plan for State or expropriated lands. The composition of the *ad hoc* commission is decided by agreement between the surveying and land settlement authorities, forest services and the land settlement committee of the commune concerned.

Problem of tenant farming.

The system of tenant farming goes back to the 18th Century in Finland, but it did not become important until the 19th Century. The tenant farms formed part of an estate, so that one estate might contain several farms. The lands rented consisted of cultivated lands varying in area from 3 to 10 hectares or dwellings with generally less than one hectare of cultivated land. The tenant farmers had several matters of complaint, the chief being their close dependence on the landowner and the resulting instability of their position. In 45 per cent. of the cases leases were verbal or else easily terminable.

The first improvement in the position of tenant farmers was introduced with the law of 1902 and the decree of 1909, by which all leases had to be sanctioned in writing and stand for a period of from 25 to 100 years. The laws also provided that at the expiration of the lease farmers should be compensated for improvements carried out.

The problem of leaseholds was not completely settled, however, and it was becoming a difficult social question which could apparently only be finally solved by transforming the tenant farmers into small landowners. This was done shortly after the Great War.

In 1918 a law was passed by which farms leased from private owners might be converted into small properties. Subsequent laws gave similar treatment to farms leased from parishes and the State. These laws gave farmers the right to purchase the land which they occupied, the price payable being less than that ruling before the War. The farmer might, if he desired, act through the State. In this case, the State paid the landowner by means of bonds and the State was repaid by the buyer in yearly payments of 6 per cent. for farms and 8 per cent. for pieces of land with a dwelling, including interest at 5 per cent. In 1936 the rate of interest was lowered by law to 3 per cent.

Tens of thousands of farmers became landowners as a result of this legislation. By the end of 1936, 65,698 farms had been acquired with full ownership by their farmers and 54,885 pieces of land with dwellings had been acquired by their occupiers. Almost all tenants have become landowners.

Problem of the landless farm labourer.

Private and State lands have been used to provide land for agricultural workers.

There are two possible procedures for settlement on private lands. The settler may borrow privately with a view to acquiring land considered suitable for settlement by the authorities. Or the State may buy land, draw up a plan for settling it and then sell the farms created in accordance with this plan. So far the former type of sale has been used most, though in the last few years the State has bought more land for settlement than before. It should be noted that expropriation as allowed by the land settlements law of 1922 has been used very little. The new land settlements law of 1936 also contains regulations for expropriating parish and commune lands and land belonging to companies and persons trading in wood. Ordinary estates belonging to individuals may also be expropriated if the small farms created before 1936 need enlarging. It is still too early to judge how far these regulations will be applied.

Settlement on private property is carried out with the help of a public land settlement fund which was formed in 1898 and reorganized in 1920 and which is financed from credits granted by the State. By the end of 1937 it had funds amounting to 603.2 Finnish marks, 513.6 millions of which were funds proper and 55 millions loans from the State. These funds are used almost exclusively for loans to the land settlement offices of the communes, which guarantee to repay the loans. These land settlement offices, which are administered by the committee of the commune, then lend to the settlers. The final decision regarding requests for loans rests with the Land Settlements Department of the Ministry of Agriculture. The loan offices may grant loans up to 50,000 Finnish marks for the purchase of land, or for the repurchase by one inheritor of the

shares of his co-inheritors in small properties. The latter loans are regulated by the 1936 law and were first granted in 1938. As will be shown below, the loan offices may also grant loans for building and improvement work.

Loans for the purchase of land and for the repurchase of shares in inheritances are repayable by yearly installments of 4 per cent. and 5 per cent. respectively, including interest at 3 per cent.

At the beginning of 1938 there were loan offices for land settlement in 506, *i. e.* nearly all, rural communes. By the end of 1937 the land settlement fund had granted to landless individuals 15,029 loans to acquire cultivable lands of from 15 to 40 hectares; 10,215 for land for settlement, of from 1 to 2 hectares, and 19,528 to enlarge farms and lands for settlement; the total amounting to 247.5 million Finnish marks. The land settlement fund has granted loans to certain land settlement co-operative organizations and communes for the purchase of land, though there has been very little settlement by these means.

By the end of 1937 the State had bought 222,600 hectares of land for settlement. Plans for settling land bought in this way are drafted and in some cases the holdings thus formed are cleared or built upon before they are handed over to the settlers. This work helped to relieve the unemployed during the depression. The purchase price of these farms is repaid to the State on the same conditions as loans for settlement. By the end of 1937, 4,081 farms and 1,037 settlement had been formed on lands bought by the State; and 1,199 pieces of land had been sold to enable small landowners to enlarge their holdings. In all the State had dealt with a total of 208,116 hectares. Woodlands not needed for farms remain part of the State lands.

Settlement on State Lands.

Woodlands, estates of Government officials and other State lands are also liable to be used for land settlement.

In Finland the State owns nearly 13 million hectares of forests, amounting to about 37 per cent. of the nation's territory, the majority lying in the North and East. Naturally some of these forest lands are suitable for settlement. The land may be allotted for cultivation either at the suggestion of the interested parties, who select the land desired and have it approved by the Government, or at the suggestion of the Government, which may plan the creation of a whole group of farms. In the latter case the State frequently carries out some of the preliminary work, such as draining marshes and laying down roads. For some years it has also erected necessary buildings and even cleared fields before selling them to the settlers. By these means 2,062 pieces of State lands had been allotted for cultivation and 767 for building houses by the end of 1937, while 550 pieces had been sold to small landowners to enable them to enlarge their holdings.

Estates of Government officials, numbering nearly 900, covered about 270,000 hectares. The majority of these estates were military residences which had been set up in the 17th Century and the usufruct of which afforded officers their

remuneration, in accordance with the military system of the time. Their original purpose having disappeared these estates were for several decades farmed by tenants. The process of dividing them up and leasing the pieces was begun in 1915. By a law of 1926 the pieces could be ceded with full ownership. When the leases ran out the Government drew up a plan for settling the land which provided for the creation of farms and the dividing up of land for dwellings. Such land was sold separately from the residence which was sold in its turn with the land immediately surrounding it. The State conserved the forests as they were not needed for the new farms. By these means 931 farms had been formed and 649 pieces of land divided up for dwellings by the end of 1937, while 861 pieces had been sold to enlarge small holdings and to add to dwellings with insufficient land.

Of State lands not forming part of the forests or belonging to residences of officials, very little has been used for land settlement.

The repayment of the cost of land coming from the State lands is regulated in the same way as that for other settlement lands.

Loans for dwellings.

The loan offices for land settlement lend to small land-owners and agricultural labourers for building purposes. From 1922 the State also granted credits to the rural working population specifically for building purposes. In 1937 a special loan office was set up which was in 1938 merged into the land settlement fund ⁽¹⁾.

This amalgamation resulted in the credits for working class dwellings being granted through the land settlement loan offices of the communes. By the land settlements law of 1936 these offices may grant credits of up to 25,000 Finnish marks for building on farms and up to 15,000 Finnish marks for building on land allotted almost exclusively for the construction of dwellings. The loan may not exceed 75 per cent. of the expected cost of construction if the house is built on the borrower's own land, and 50 per cent. of the cost if built on leased land. The borrower must have his building plans approved by the land settlement authorities and the latter may in some circumstances supply model plans. The building loans are repayable in annual instalments of 5 per cent., including interest at 3 per cent.

By the end of 1937, 356.2 million marks divided between 53,202 loans had been granted for building purposes. About half of these loans were granted to small farmers, the other half to agricultural workers.

⁽¹⁾ A similar loan office contributes towards the construction of small family dwellings in towns, villages, etc., but it does not come under the aegis of the land settlement authorities.

Farming of new lands.

A large part of the lands for settlement were uncultivated, though on the majority of farms, it is true, some of the land was cleared and even necessary buildings built before the land was handed over to the new owner. But generally the new owner had to start at once preparing fields and buildings. To do this he could obtain a moratorium of not more than ten years on his annual payments to the State and to the loan office for land settlement on condition that the proposed improvements were carried out. A moratorium of ten years is granted to all settlers on farms formed out of the State forests.

As was said above, settlers can obtain credits for building by means of the loan offices for land settlement. These also grant loans for clearing and improving arable and pasture lands. By the end of 1937, 21 million marks had been distributed between 8,403 loans in this class. The conditions of repayment are the same as for building credits.

For some years, bounties for breaking up and cultivating new land have been given and these are generally used to pay off loans made to the settlers by the State. In 1937 and 1938 the State tried the experiment of granting interest free loans to enable settlers to buy equipment.

The authorities also watch over the development of the settlers into good farmers, and a special system of instruction has been worked out, in which an important part is played by instructors. The instructors are allotted an area by the land settlement authorities and must give instruction to certain settlers in the area indicated by the authorities, the cost being paid by the State. The course lasts for from one to ten years according to circumstances. Having examined the existing position and possibilities of the holding, the instructor works out a general scheme, plans for the yearly work of the farm and, if necessary, plans for clearing the land and for building. In 1938 about 5,400 holdings enjoyed this practical instruction.

Preserving the settlements.

There was much discussion at the beginning of the century as to how to keep settlement farms in the hands of the settlers. The question was whether it was better to grant the land in hereditary emphytheusis or freehold. Emphytheusis has not been used in Finland for internal settlement, but for some time a tenant system has been used by which the lease is automatically converted into freehold when the sum of rent payments reaches the value of the property, including the interest on this value. Direct sale has already taken the place of this system, except with farms where the State has had to perform the clearing and building. In these last cases, the farms are generally given to candidates for a probationary period of not more than 10 years, and they do not acquire the property until after this probationary period.

Although land settlement farms are held in freehold, it was considered desirable to restrict this freehold in the interests of land settlement, and to

this end the 1936 law specified that the settler might not sell his land to a person already owning land without the permission of the land settlement authorities and he may not leave or partition it. Nor could he sell woodlands in his holding without permission. Infringement of these rules would make him liable for repayment of the State's loans, plus a fine. Settlement farms remain under these restrictions for 20 years, and over this period the farms are kept on a register at the Land Settlements Department of the Ministry of Agriculture. These regulations only affect farms proper and land to extend ground for housing purposes, though the ground itself does not come under the regulations.

Results of land settlement.

The following figures show the results of land settlement up to the end of 1937 :—

Class of land	Number of new farms	Number of new small farms with dwellings	Total	Area in hectares
Bought by private agreement and by means of credits for land settlement	15,421	10,215	25,636	556,011
Bought by the State	4,081	1,037	5,118	208,166
Acquired by rural communes and land settlement co-operative unions with the help of credits from the State	576	101	677	17,011
Land from State property	3,079	1,439	4,518	240,555
	23,157	12,792	35,949	1,021,743

In addition as was shown above, 65,698 farms and 53,885 dwellings which were formerly rented have been acquired by their tenants.

An official commissions is investigating the position of small farmers in Finland, though its report on the effects of land settlement has not yet been published. But at least it is known that the majority of tenant farmers whom the State has enabled to buy land on advantageous terms have become prosperous small landowners.

Nevertheless, a large number of settlers had great initial difficulties. However, these were overcome by the moratoria on annual payments, and in some cases by reductions on the sale price. Very few of the settlers have been reduced to a forced sale of their land.

There has been a great change in the social and economic condition of the rural population since the beginning of the century, and especially since the Great War. The total number of persons living by agriculture has hardly increased, for labour has been attracted by the great developments in other branches

of the economy. On the other hand, the relationship between the different groups forming the agricultural population has been greatly altered:

Agricultural Population	1901	1910	1930
Owner farmers.	604,000 (39.9 %)	748,000 (39.1 %)	1,238,000 (62.9 %)
Tenant farmers	352,000 (22.8 %)	383,000 (20.0 %)	112,000 (5.7 %)
Agricultural labourers	591,000 (38.2 %)	781,000 (40.9 %)	617,000 (31.1 %)
Total . . .	1,547,000 (100 %)	1,912,000 (100 %)	1,967,000 (100 %)

Thus the percentage of the population farming its own lands has risen between 1901 and 1930 from 39.1 per cent. to 62.9 per cent. of the total population living by agriculture. This change, which is in the main the result of land settlement, has led to a considerable improvement in the social condition of the peasants.

INTERNATIONAL CHRONICLE OF AGRICULTURE

BELGIUM

General price policy.

In 1938 the position of agriculture again became critical after the improvement recorded during the years 1935-1937. The Belgian *Boerenbond* agricultural index number shows that the margin between selling prices and the cost of production of agricultural products is still very considerable:

	Selling Price Index	Cost of Production Index	Margin Index
	1909-1914 = 100		
1935	502	630	128
1936	555	689	134
1937	604	736	132
1938 March	612	758	146
April	611	760	149
May	653	767	114
June	662	767	105
July	632	766	134
August	631	754	123
September	641	748	107
October	656	748	92
November	650	744	94
December	646	751	105

This situation led the *Alliance Agricole Belge*, a union of Walloon farmers, horticulturists and small stock farmers to make clear to the public authorities at its recent general assembly the great importance of the following recommendations⁽¹⁾:

1. The re-establishment of a normal balance between arable and stock farming especially by an adequate and stable "revalorization" of all cereals with a view to extending the area under crops and so avoiding a dangerous over-production of dairy and animal products.
2. Reduction of the often excessive margin between the price paid to producers and that charged to consumers.
3. Reserving the home market for Belgian products and improving its organization.
4. Use of Belgian agricultural products by all Government and public institutions.
5. A revision of trade agreements in the interests of agriculture.

The economic position of Belgian agriculture depends in part upon the possibilities of selling the surplus production of certain branches abroad, so that all official circles are concentrating their attention upon the problem of exporting agricultural produce.

In May 1938, in reply to these recommendations, the Government reaffirmed its statement of June 1936, expressing its intention of protecting the home market and of pursuing a policy of reducing cost prices and organizing the farmers. Everything possible will be done to improve farming equipment and to guarantee a profit margin to the farmers.

It was recognized that the Government would first of all have to be supplied with information about the agriculture, industry and trade of the country before deciding on the financial, economic and social measures for carrying out this programme. On November 16, 1938⁽²⁾, therefore, a Royal Decree ordered the Central Statistical Office to prepare statistics of the various branches of production and trade in Belgium.

In addition, a Royal Decree of August 26, 1938⁽³⁾ set up a Ministerial Committee for economic co-ordination. The Committee whose views are submitted to the Council of Ministers is to study in particular such matters as measures to meet the crisis, the utilization of labour, tendencies of the whole of the national economy or certain of its branches, market equilibrium at home and abroad and the effects of social, fiscal and transport policy upon production and trade.

By a Royal Decree of August 13, 1938⁽⁴⁾ regional and national commissions composed of representatives of producers and traders in farm and garden produce have also been set up, to decide on the standard prices to be paid to producers. They will take account of the condition of the market, costs of production and, where necessary, the cost of transport.

Cereals.

Expectations of very good crops in wheat producing countries caused a heavy fall in the prices of cereals. From January to October 1938 on the principal Belgian markets they fell, on the average from 134.21 francs per quintal to 111.41 francs for wheat; from

⁽¹⁾ *Alliance Agricole Belge*, No. 40. Brussels, October, 1, 1938. — ⁽²⁾ *Moniteur Belge*, No. 323, November 19, 1938. — ⁽³⁾ *Moniteur Belge*, No. 251, September 8, 1938. — ⁽⁴⁾ *Moniteur Belge*, No. 230, August 18, 1938.

117.28 to 64.43 for rye; from 114.73 to 77.40 for oats; from 116.92 to 75.13 for winter barley.

The position is critical because world prices represent only from 50 to 65 per cent. of cost prices, and because about a third of Belgium's farm lands are under these crops.

In accordance with its programme, the Government has therefore decided to proceed with the "valorization" of cereals, which is considered indispensable to agricultural equilibrium; the policy employed from 1932 to 1935 and then abandoned was again introduced in 1938. The funds for valorization are obtained from a tax on import licences. By a Royal Decree of July 19, 1938 imports of wheat were subjected to a special duty of 10 francs per quintal which was first raised to 20 francs (Royal Decree of September 14, 1938) and then to 22 francs (Royal Decree of December 26, 1938) ⁽¹⁾. With the exception of oats, which is regulated separately, valorization applies to all cereals, including rye, barley, spelt and meslin.

A special commission consisting of agricultural and industrial representatives, economists and Government officials is to study the cereals problem as a whole.

Dairy produce.

In recent years the Government has paid special attention to milk. In our last Chronicle dealing with Belgium ⁽²⁾ we described the Government's plan for dealing with this question. This plan is now being put into operation.

In recent months the economic position of milk production and the milk industry has not been satisfactory. The price of milk products has fallen; butter from 25.20 francs in March 1938 to 23.50 in April and 21.60 francs in May. It might have been thought that less milk would have been marketed than in the preceding year owing to the epidemic of foot and mouth disease, but this was not in fact so.

Margarine and food fats were strong competitors to butter.

Dairies and merchants helped to ease the market somewhat by withdrawing for winter consumption more than 3 million kilograms of butter during the period of high output.

The Ministry of Agriculture prohibited all imports of butter and limited monthly quotas for manufacturing coloured margarine to a strict minimum.

The "National Office for Milk and its Derivatives" has assumed the supervision of butter, compulsory and optional, which the Ministry decreed on April 30, 1938. It aims at ensuring the production and consumption of a butter guaranteed as to quality. Any dairy or butter factory desiring to use the official mark must have been approved by the Ministry of Agriculture. The milk department of the Ministry prepares a report on the dairy or factory ascertaining in particular whether pasteurization is adequate, whether refrigeration equipment is satisfactory and whether the water can be declared pure after chemical and bacteriological analysis. The actual supervision is carried out under the auspices of the National Office for Milk and is conducted by means of frequent tests and analyses of butter. When several tests have given satisfactory results, the official mark is stamped on the butter of the approved dairy or factory.

On September 24, 1938 a ministerial decree ⁽³⁾ dealt with the supervision, compulsory and optional, of condensed milk.

⁽¹⁾ *Moniteur Belge*, No. 365, December 31, 1938. — ⁽²⁾ April 1938 number of this Bulletin. — ⁽³⁾ *Moniteur Belge*, No. 230, August 18, 1938.

Further, three royal decrees dated August 13, 1938 ⁽¹⁾ were issued, which aimed at offsetting seasonal fluctuations in the milk market. The first grants subsidies to manufacturers of whole milk powder, thus enabling 5 million litres of milk to be withdrawn from the market. The second subsidizes the production of condensed milk, allowing from 4 to 5 million litres of milk to be taken from the market. The third subsidizes the production of cheese. All these subsidies are intended to support a new industry which will absorb a large quantity of milk from the market during times of over-production.

The use of the words, butter, cream, milk cheese, is regulated by the Decree of August 13, 1938 ⁽²⁾ which attempts to stop the use of trade marks for certain goods which show the names of milk products not really contained in the goods.

Meat.

Beef and veal. — During recent months the position of the beef and veal market has been unsatisfactory, but there is not much scope for intervention in this field. In trade agreements with Denmark and Ireland in 1934, formal arrangements were made for the import of cattle. Improvement in the beef and veal market depends largely upon the possibilities of altering existing agreements. As occasion arises the Government endeavours to adapt these agreements so that cattle-breeding may be protected.

There were negotiations with the Danish Government for a provisional arrangement after imports of cattle into Belgium had been suspended owing to foot-and-mouth disease. On September 22, 1938 a provisional arrangement was signed by which it was agreed that the Belgian Government should concede Denmark a beef quota. Such imports would be sold on the open market in Belgium. Meanwhile it was pointed out to the Belgian stock farmers that home production would soon meet all the needs of the home market and that it should not therefore be increased too much.

Pigmeat. — In contrast to beef, the market for pig products was very satisfactory in 1938. A rise in the price of pork followed the low prices of 1937 as was to be expected from the course of the pig cycle. The depression in pig production was lessened by Government measures to encourage exports, the value of exports of fresh pig-meat, salted fat pork and lard to Germany reaching nearly 12 million francs in 1937.

The spread of foot-and-mouth disease affected the cyclical rise in pig prices.

Agriculture and paid holidays.

A royal decree of July 15, 1938 ⁽³⁾ fixed the special methods of applying the law of July 8, 1936 relating to holidays with pay to farm, horticultural and forest workers. These branches of production are regulated as follows:

1. Permanent employees may claim one day's paid holiday for each consecutive month of work with the same employer.
2. The holiday must be taken during the year in which the work is performed; by agreement with the employer the worker may take all or part of his holiday during the first three months of the following year.

⁽¹⁾ *Moniteur Belge*, No. 292, October 19, 1938. — ⁽²⁾ *Moniteur Belge*, No. 230, August 18, 1938.
— ⁽³⁾ *Moniteur Belge*, No. 197, July 16, 1938.

3. For each day's leave the worker is to be paid the daily wage earned at the time of leaving for the holiday, plus the money value of any payments in kind which he may receive.

4. The holiday may be taken in single days at any time during the year, provided that each holiday period of less than two days is preceded or followed by a Sunday or legal holiday.

Holidays dates are arranged by agreement between employer and worker in such a way that work is not impeded.

HUNGARY ⁽¹⁾

General situation of agriculture.

Recent international events have brought an increase of 12,000 square kilometers to the territory of Hungary. The regained territory is geographically part of the Hungarian basin, and in it—as in the rest of the country—agriculture is the predominant economic activity. To the farm lands of Hungary it has brought an increase of about two million hectares or 12.5 per cent.

The different branches of agricultural production in the regained territory are in approximately the same proportion as in the rest of the country. The area of woodlands is however relatively greater and has brought an increase of 23 per cent. to the woodlands of the country. This means that imports of wood for fuel will be reduced; imports of wood for building purposes will, however, probably increase. There are relatively fewer vineyards and meadowlands in the new territory so that the internal market for wines has been increased to some extent.

As there are considerable differences in the distribution of arable land between the various crops in the new territory, the increases in output vary greatly. Thus the output of wheat has increased by 13 per cent., rye 16 per cent., barley 23 per cent., oats 5.5 per cent., potatoes 19 per cent. and sugar-beet 50 per cent.

In general, the new territory is even more agrarian in character than the rest of the country. In many respects therefore Hungary will have a larger export surplus of agricultural products within the next few years, though the position may change in time. From the point of view of national economy as a whole the changes in the economic structure can be considered with satisfaction, since both the capacity for producing raw materials and also the internal market have increased.

The following chronicle refers to the former area of Hungary, before the recent recovery of territory.

The general economic situation was more favourable in the first six months of 1938-39 than might have been expected from the business prospects of the previous six months. This was due to the exceptionally good harvest and possibilities of export. On August 27 it was estimated (figures in parentheses showing the average for 1931-1935) that 26.2 (20.8) million quintals of wheat, 8.2 (7.2) of rye, 6.7 (6.3) of barley, 2.8 (2.7) of oats, 26.1 (18.6) of maize, 24.3 (16.8) of potatoes and 9.7 (8.9) of sugar-beet were

(¹) Brought up to December 31, 1938.

(²) See the *Chronicle* for July 1938.

harvested. But the yield was below the average for other products such as fruit, vegetables and wine. The yield of fruit and vegetables was small, and the harvest was delayed by unfavourable weather at the beginning of the year.

Cattle suffered very badly from foot-and-mouth disease which had, however, begun to abate at the time of this report. A relatively damp summer and the continued mildness of autumn assured good pasture up to the end of October. The autumn weather was throughout quite good and facilitated the carrying-out of farming operations.

Although the harvest was above the average, selling conditions were not unfavourable. The surplus of cereals amounted to 7 million quintals, of which 5 million have already been sold to Germany, Italy and Switzerland, though there were difficulties in marketing rye and barley. On the other hand there was no difficulty in marketing maize and potatoes, and particularly on the home market-wine. Up till the last few weeks exports of pigs were very satisfactory, whereas throughout the whole period covered by this report exports of cattle fell off, chiefly because of the catastrophic fall in the exports to Italy. Exports of eggs and poultry remained somewhat lower than in the previous year. The small surpluses of fruit and vegetables were marketed easily and at fairly good prices.

With the exception of cattle, rye and barley, prices were satisfactory, though home prices for pigs fell in December. The movement of prices and harvest led to a substantial increase in the purchasing power of the farming community, which in October was 21 per cent. above the previous quarter and 33 per cent. above October of the preceding year.

As before, the Government, sought to promote and improve sales of agricultural products. As was shown in the last chronicle ⁽¹⁾ the financial backing for the marketing scheme consists of a fund derived from different taxes, tariffs and other contributions, and is administered by the Minister of Agriculture. This fund and the marketing scheme which it finances were maintained for 1938-39 ⁽²⁾.

Labourers also benefited from the good harvest as many of them receive payment in kind. The day labourers paid in money were also better off and had more regular employment. Despite the employment of older men there was a temporary shortage of labour in many places. In the autumn a day-wage of 4 or even 5 pengős was paid to male workers. The payment of benefits for the old age insurance scheme introduced in 1938 will commence in 1939.

Market and price regulation of cereals and oilseeds.

The Government decides from year to year the extent to which futures may be dealt in on the exchange. As before, farmers were opposed to it in 1938-39 while business circles supported it and demanded the reintroduction of dealings in wheat futures. The Government kept to its former position, allowing dealings in rye and maize futures, but refusing to reintroduce dealings in wheat futures.

⁽¹⁾ See the Chronicle for July 1938, *Monthly Bulletin of Agricultural Economics and Sociology*, p. 332 et seq.

⁽²⁾ Government Decree (No. 4 300, M. E. 1938) to continue measures in support of agriculture: *Budapesti Zsemlöny*, No. 142, June 29, 1938.

The Ministry of Industry and Trade authorized the *Futura A. G.*, the official organization of this Ministry, which regulates the sale of cereals, wool, etc., to buy and work up sunflower seed and to sell sunflower oil. The prices of seed and oil were fixed for the whole year. Importers could obtain permits to import foreign fats only if they agreed to take a certain quantity of oil from the *Futura* at a fixed price, or else to pay into the fund for subsidizing exports a certain contribution for each quintal of fat imported. Neither permits for the import of fats nor export bonuses were granted for seed and oil not bought through the medium of the *Futura*.

Introduction of an Alcohol Monopoly.

In the last half year, the most important legislative measure relating to agriculture was the Alcohol Monopoly Law ⁽¹⁾.

Previously there had been an excise duty on alcohol and the total annual output was fixed, being divided between agricultural and industrial distilleries in the proportion of two to one. The aim of the new law is to control marketing more strictly and to shift production in favour of agriculture in general and of peasant farms in particular. The industrial distilleries either become the property of the State or continue to work for the account of the State. Large distilleries must be taken over by the State, but the operation of the smaller ones is left to the discretion of the Government. No new industrial distilleries will be allowed. In the case of agricultural distilleries the law distinguishes between private and co-operative. The latter are intended to supplement the small farms, as the private distilleries do the larger farms. Distilleries for wine and fruit form a separate group. The Government can order them to manufacture a certain percentage of their quota of spirits exclusively from wine, and to buy the wine directly from the producer at a fixed price so long as this price does not rise above certain level. In contrast to the above group, which includes the large enterprises, the small distilleries for fruit brandies are designated by the law as brandy distilleries. In these the raw materials produced on the small farms are distilled against payment in money or with part of the product. Agricultural interests are also to receive more consideration as regards refining, industrial distilleries receiving in future no licences for refining, while the agricultural distilleries may receive licences only when they are attached to a co-operative organization.

Every year at least 4 distilleries will be authorized, in the first place for farmers' co-operative organizations. If the quotas are not increased to correspond with the capacity of the new distilleries they may be re-distributed in favour of the co-operative distilleries.

The State can also distil on its own account in the so-called monopoly distilleries, and it alone has the right of importing and resale. The State also fixes the sale prices to be paid to the distilleries, graded with reference to the type of enterprise, capacity and quota, the principle being that an adequate profit should remain after total costs have been covered. The designation of a distillery as "agricultural" depends upon conformity with certain conditions. It is forbidden to lease agricultural distilleries and their location can only be shifted with special permission and under specified conditions.

⁽¹⁾ Law. A. XXX, 1938, published in the *Országos Törvénytar* of July 22, 1938. Order published in the *Budapesti Közlöny* No. 185 of August 20, 1938.

Regulation of wool marketing.

Instructions from the Ministry of Agriculture to the *Futura A. G.* mentioned above regulate the marketing of wool as follows:— the farmer delivers the wool to a prescribed warehouse where it is immediately graded. The estimated price is at once published by the *Futura*. If the producer desires to dispose of the wool at this price, he receives the purchase price immediately with a deduction of only one per cent. commission. If he wishes to postpone sale to some future, he must bear the costs of warehousing and insurance in addition to that of the commission. The farmer may also sell freely without the *Futura*, but he must then pay the commission and the costs of transfer and warehousing. Finally, the farmer may also sell the wool at the first auction, independently of the estimated price published. The system is therefore elastic, and if appears to satisfy the producer.

Regulation of trade in fuel wood.

The Government has freed trade in fuel wood from all the former restrictions, so that the powers of the Government commissioner, transport permits, and fixed prices are abolished for the year 1938-39. But to make supervision possible, wood dealers must inform the Office for Foreign Trade of all sales contracts for more than 10 metric tons ⁽¹⁾.

Regulation of wine and fruit production.

The law ⁽²⁾ on the "vine communes", and the cultivation of wine and fruit, recapitulates the existing legislation on the wine industry, but in many respects its production policy for this very important branch of Hungary's industry strikes out in quite new directions. Compulsory unions of wine-growers under the name of "vine communes" have existed for decades, but their means were too small and their powers too limited. The new law orders that henceforth in every political commune where there are not less than five owners of vineyards with not less than fifty cadestral *joch* ⁽³⁾ of vinelands, the owners must form themselves into "vine communes"; similarly for orchards. In this way such organizations will be formed in approximately every third commune, to protect plants against disease, and to promote rational methods of planting, cultivation, harvesting and marketing. To cover costs they are allowed to exact contributions similar to public taxes. The "vine communes" are grouped like "Comitats" into so called "councils of the vine communes" which must regulate the work of the separate communes for purposes of production and marketing. They also

⁽¹⁾ Order (No. 5920 M., E. 1938) on giving information about contracts in fuel wood. Published in the *Budapesti Közlöny* No. 188 of August 25 1938.

⁽²⁾ Law on the vine communes and wine and fruit cultivation. Published in the *Országos Törvénytár* of August 2, 1938.

⁽³⁾ *Joch* = 1 $\frac{1}{4}$ English acres approximately.

serve as executive organizations for the Minister of Agriculture as regards wine and fruit. The work is looked after by the secretary of the council, who must have had specialised training in the subject.

The second part of the law contains regulations for wine and fruit production. The law forbids the planting of new vineyards for three years. When this prohibition—which in certain cases may be extended for a further three years—lapses, planting is only allowed on suitable sandy soil or on suitable mountain land. In any case, no one owner may plant more than two *joch*, and the total may not exceed 2000 *joch* in any one year. Moreover, newly planted areas have to pay special taxes. Existing vineyards situated on flat land and causing serious marketing difficulties with their ordinary wines must pay a fairly high tax, which is used to subsidize marketing. By this means it is hoped to reduce the area of surplus cultivation and to convert it into arable land. The law has also solved the problem of direct bearing plants by ordering their destruction or top-grafting, though in such cases compensation or a money subsidy from the State is to be paid. No compensation will be paid to vineyards of this type exceeding two *joch* unless the vine is the principal plant grown on the holding in question.

The law gives full powers for the future regulation of vine-growing by means of Orders. Varieties of wine and table grapes have been fixed for the various vine-growing regions ⁽¹⁾. In selecting table grapes, the needs of foreign markets have been given careful consideration. Various other measures protect vine-growers against trade abuses. The cultivation of and trade in vines is strictly supervised and the seller is made responsible for the purity, uniformity and quality of the different varieties.

These measures give the Government the power of controlling production and sale and so also of removing marketing difficulties. Vine-growing is important in Hungary not only for economic but also for social reasons, since more than 100,000 agricultural workers live by it. Marketing difficulties are mainly a result of the dependence upon exports, which again is due to the relatively small *per capita* consumption of grapes (2.7 kg.) and wine (37.9 litres). In some years all difficulties in marketing an average harvest would disappear with an increased consumption of 10 litres per head per annum. For this reason the order sets up several selling organizations to increase the consumption of wine.

Finally the law requires owners of vineyards of more than a certain size to appoint administrators with specialised secondary or higher education. The same duty falls upon owners of orchards.

Regulation of fruit exports.

The Office for Foreign Trade regulates exports of fruit and seasonal products as follows. Exportation proceeds under supervision, and exports to the chief importing countries may only take place through the "Hungarian Union for Fruit Exports" which is to be set up. Only those exporters may join the Union who agree always to pay the producer export-quality prices. They must not undersell on foreign market and must attend to the standards of quality and help to improve quality by all methods.

⁽¹⁾ Order (No. 85,000, 1938 F. M.) on the application of the law regarding vine communes. Published in No. 243 of the *Budapesti Közlöny* of October 30, 1938.

A further obligation is a minimum export. The Office of the Union supervises the fulfillment of these obligations. Export quotas are not allotted within the Union.

These have been certain new regulations regarding the export quality of peaches, apricots and table grapes ⁽¹⁾.

Agricultural credit.

Formerly the Statutes of the Bank of Issue only permitted the discounting of bills with a maximum maturity of six months. The Statutes as modified distinguish between agricultural commodity bills and agricultural production bills. Commodity bills are for based on deliveries of goods and other supplies occurring in the normal course of farming operations. On the other hand production bills, which can run for nine months, are based on the farmer's credit operations for obtaining money needed to cover the cost of the production process or production period. The Bank of Issue only discounts production bills if the financing institute presenting the bill declares that the credit was granted for purposes of production and that the debtor is known as a solvent and capable farmer. This is done by means of form which in some cases, is also confirmed by the Chamber of Agriculture. At present this type of bill does not exist in any other country. The stamp duty on bills has been reduced from 5 to 2 per cent. as a further aid to seasonal credits for agriculture ⁽²⁾.

Other measures.

To put the different measures aiming at the supervision of the *cereals* market on a sound basis, the Government made the opening of new mills and the extension of existing ones dependent upon the consent of the Minister of Industry ⁽³⁾.

A further ordinance ⁽⁴⁾ empowered the Minister of Agriculture to order the *eradication of maggot and similar pests from lentil, pea and vetch* crops in all communes in which, or near which, the State, a public body, or an agricultural union, operates an establishment for the eradication of such pests. When such an order is issued producers are required to report the area cultivated and the size of the crop, while the introduction of the above named crops into the area in question is forbidden. The products named may be put on the market in the districts mentioned only after the eradication process has been carried out and only in specially marked sacks.

⁽¹⁾ Order (No. 5670, 1938, M. E.) on the supervision and testing of quality of table grapes intended for export. Published in the *Budapesti Közlöny* No. 180 of August 13, 1938. — Order (No. 6130, 1938, M. E.) on the supervision of exports of peaches and apricots. Published in the *Budapesti Közlöny* No. 194 of September 1, 1938. — Order (No. 93420) on the supervision of exports of certain varieties of table grapes. Published in No. 213 of the *Budapesti Közlöny* of September 24, 1938.

⁽²⁾ Order (No. 1509, 1938, P. M.) on the duties on agricultural bills. Published in the *Budapesti Közlöny* No. 142 of June 29, 1938.

⁽³⁾ Order (No. 4450, 1938, M. E.) on limiting the building or extension of mills. Published in the *Budapesti Közlöny* No. 226 of October 11, 1938.

⁽⁴⁾ Order (No. 106, 153, 1938, F. M.) on the compulsory protective measures against corn-weevil in lentils, peas and vetch. Published in the *Budapesti Közlöny*, No. 138 of June 24, 1938.

Previously the State had encouraged the *cultivation of silkworms* among the rural population, and at the same time had set up silk mills. After the War these were leased out, but in recent years the Ministry of Agriculture has brought them back under State control. In this way it is hoped to increase exports.

By an Order ⁽¹⁾ of December 1938 on the *compulsory leasing of neglected landholdings* the Minister of Agriculture can order owners of property which has remained uncultivated in part or in whole for one year to attend to its cultivation or else to lease the property either in whole or in part, within a prescribed time. If the land has been neglected for more than two years the Minister does not need to give the owner the first of these two alternatives. Such lands may only be leased to small tenants.

To improve the cultivation of cereals 6,000 metric tons of seed wheat and 2,000 metric tons of seed rye were distributed, the State paying the price difference and transports costs. Thus the farmers had to pay only the normal price of the grain.

The *scarcity of manure* remains a great obstacle to agriculture in Hungary. The consumption of artificial manures specially low on the smaller farms. The Government has therefore taken several measures to encourage and facilitate its consumption.

A two-year *course on horticulture* has been arranged in the Faculty of Agriculture of the University for Technical and Economic Sciences. Previously there was only a secondary technical school for horticulture.

IRELAND

The general position of Irish agriculture in recent months has been characterised by the continued increase in the value of agricultural exports. This is of special importance as about half of the total value of annual agricultural output is represented by exported produce. The value of annual agriculture exports rose from £13,934,000 in 1935 to £16,437,000 in 1936 to £16,938,000 in 1937; and the value for the eleven months January to November 1938 was £17,476,000 that is greater than that for the whole year 1937. There have been considerable increases in each of the four most important individual items.

Value of Exports of Irish Agricultural Produce.

	January-June		January-November	
	1938	1937	1938	1937
	£	£	£	£
Total	7,780,130	7,069,183	17,476,320	14,334,899
Cattle	3,853,993	3,467,252	8,870,745	7,018,258
Bacon and ham	876,892	743,824	2,062,248	1,595,797
Butter	741,396	570,924	2,122,804	1,549,962
Eggs	780,284	619,654	1,159,438	853,007

⁽¹⁾ Order (No. 8730, 1938, M. E.). Published in the *Budapesti Közlöny* No. 271 of December 2, 1938.

From these figures it can be seen that the increase that has been going on in recent years was intensified in the second half of 1938, mainly by a very large increase in the value of cattle exports. Cattle exports account for about half of the total value of Irish agriculture exports.

This increase in the total value of agricultural exports is due mainly to a rise in prices obtained on export markets. An index of exports prices (1930 = 100) rose from 61.7 in 1935 to 66.6 in 1936 and to 74.9 in 1937; in January 1938 it stood at 81.2, rose suddenly in May and June to 89.5 and 95.0 respectively and was 89.8 in September 1938, the latest figure available.

In contrast with exports of agricultural produce, exports of industrial goods were less in value in January-November 1938 than in the corresponding period of 1937. Further, the much more important item, imports of industrial goods, was also smaller in this period of 1938 than in the same period of 1937; the figure for 1938 is £25,521,035, for 1937, £28,115,612 ⁽¹⁾.

This, and the fact that the number of unemployed has been greater in recent months than it was in the corresponding period of 1937, point to a deterioration of the general economic situation.

Agricultural prices have been, however, considerably higher in 1937 than they were in the preceding year.

Agricultural Price Index Numbers.

(Base 1911-13 = 100).

	1936	1937	1938
January	83.4	92.1	104.1
February	82.1	93.8	107.4
March	82.8	98.6	108.3
April	86.0	103.6	108.5
May	90.0	106.5	111.5
June	90.8	107.9	114.5
July	90.7	110.5	112.1
August	92.2	106.9	111.4
September	91.8	106.3	114.1
October	98.1	110.4	116.3
November	95.7	106.9	...
December	98.9	108.3	...

The prices of the most important individual products of Irish agriculture have been higher in 1938 than in 1937. Cattle accounted for nearly twenty per cent. of the total value of agricultural output in 1936-37, and are by far the most important indi-

⁽¹⁾ The adverse balance of trade of the twelve months December 1937 to November 1938, £17,609,900, was about £3,400,000 less than in the corresponding period 1936-37 but the same approximately as in the same period of 1935-36 and 1934-35.

vidual product. The prices of cattle on the Dublin market averaged 21.25s. per cwt. in 1935, 23s. in 1936, and 29.5s. in 1937; and during 1938 this rise has continued. From 33s. in January the price rose to a 38s. in June. It then fell to 31.5s. in October, the latest figure available; this fall is, however, a seasonal movement, the prices realised in the autumn of 1938 being the highest autumn prices since 1932.

The prices of pigs and of butter, two other of the most important provides, are subject to government regulation. Pigs prices were at about last years's level ⁽¹⁾. Butter prices, on the other hand, were considerably higher ⁽²⁾.

Certain agricultural costs have risen. Particularly is this the case with feeding-stuffs. The prices of maize, maize-meal, linseed cake and meal were higher in the third quarter of 1938 than in the same period in 1937. Cotton-seed cake, and certain other feeding stuffs were, on the other hand, cheaper.

There has been no important change in Government agricultural policy in recent months. However, in November 1938 the Government agreed to a request from a deputy in the Dail for the appointment of a Commission to enquire into the conditions of Irish agriculture.

Foreign trade regulations.

Trade Agreement with Germany. — The Trade Agreement signed in January 1935 was, in November 1938 extended for a further period of twelve months beginning on January 1, 1939. Arrangements have been made for the export to Germany in 1939 of cattle, eggs, meat products, and herrings. The new agreement provides that German purchases in 1939 will be made on the open market; this obviates the necessity for special price arrangements between the Governments.

The total value exports to Germany has increased considerably since 1934; but this total still remain but a very small percentage of total Irish exports. Exports to Germany in the years 1934 to 1937 valued £ 163,828, £ 493,982, £ 640,102; and £ 840,492 ⁽³⁾. The total value of Irish exports in 1937 was about £ 22,000,000.

Cereals.

Cereal-growing in Ireland is encouraged by various measures taken in accordance with the Agricultural Produce (Cereals) Acts, 1933-35.

Wheat. — The wheat-grower is guaranteed a statutory minimum price and is assured a market for his produce.

The statutory minimum prices are fixed two years in advance and have already been fixed for the crops of the 1939-40 and 1940-41 seasons. Four official grades of wheat based on bushel weight are established and prices for each grade are fixed for each month of the year. These statutory minimum prices are to be the same in 1939-40 and 1940-41 as they were in the two preceding seasons.

(1) See page 83.

(2) See page 83.

(3) The figure for Austria rose from £ 1,299 to £ 2,045, an insignificant amount.

In addition to this statutory regulation, wheat prices are regulated by agreement between the Irish Beet Grower's Association and the Irish Flour Millers Association. An agreement reached in September 1938 fixed minimum prices considerably higher than the statutory minimum; these prices are the same as those agreed upon last year except that a new fourth grade, not corresponding to an official grade, is introduced and the price for this grade is fixed 1s. higher than the fifth grade in which wheat now coming into the fourth grade previously fell.

Prices for Home-Grown Wheat for Crops of the 1939-40 and 1940-41 Seasons.

(a) *Statutory minimum prices.*

Prices per barrel of 20 stones.

Grade, according to bushel weight	September- November	December	January- February	March-July	August
1. - Not less than 62 lb.	27s.	27s. 6d.	28s.	28s. 6d.	27s.
2. - Less than 62 but not less than 59 lb.	26s. 6d.	27s.	27s. 6d.	28s.	26s. 6d.
3. - Less than 59 but not less than 56 lb.	26s.	26s. 6d.	27s.	27s. 6d.	26s.
4. - Less than 56 but not less than 53 lb.	24s.	24s. 6d.	25s.	25s. 6d.	24s.

(b) *Minimum prices fixed by agreement between
the Beet Growers Association and Millers Association.*

Prices per barrel of 20 stones.

1. - Not less than 62 lb. 30s. 6d.
2. - Less than 62 but not less than 59 lb. 30s. 0d.
3. - Less than 59 but not less than 56 lb. 29s. 6d.
4. - Less than 56 but not less than 55 lb. 28s. 6d.
5. - Less than 55 but not less than 53 lb. 27s. 6d.

In order to ensure that all the wheat harvested shall be absorbed by the mills, the Acts provide that of the quota of wheat to be milled allotted to each registered miller for each season, a percentage to be fixed for each season by the Minister for Agriculture, shall be home-grown wheat. For the 1938-39 season this percentage was fixed at 35 (1); but by a Variation in Order (2) made in October 1938, it was reduced to 30.

(1) See the September 1938 issue of this Chronicle p. 446.

(2) Home-grown Wheat (National Percentage for Cereal Year, 1938-39) (Variation) Order, 1938.

Maize. — A further provision of these Acts is that all maize meal mixture shall contain a certain percentage by weight of home-grown cereals. This percentage has been fixed from time to time by the Minister for Agriculture; since August 1, 1938 it has been 10 per cent. (1).

This provision was intended to ensure a ready market and reasonable prices for home-grown barley and oats. The main object of the Acts was, however, to encourage wheat-growing, and now that the area sown to wheat has increased from less than 22,000 acres in 1932 to over 220,000 in each of the last three years and has become an important source of receipts from arable-farming, the need to grow oats and barley as a cash crop is smaller than it was. Although it has been necessary to fix only a low compulsory admixture percentage in order to absorb the surplus of saleable barley and oats in recent years, the maize-mixture regulations have been detrimental to the interests of stock-breeders because they have tended firstly to make the price of maize-meal higher than it otherwise would have been, and secondly to restrict the freedom of choice of feeding-stuffs. In these circumstances the Minister for Agriculture has announced that in September 1939 the maize-mixing scheme will be abolished.

Regulation of the price of bread.

Bread prices in Ireland are regulated in accordance with the *Bread (Regulation of Prices) Act, 1936*. This Act empowers the Minister for Industry and Commerce to fix a standard price for flour; this is not a price to be adhered to by millers and the public in actual sales nor a statutory maximum or minimum, but serves solely for the calculation from a schedule set up in accordance with the Act, of a minimum retail price for bread. In June 1938 the standard price of flour was 48s. 6d. per sack of 280 lb., and this gave a retail price of bread of 11½d. per 4 lb. loaf. Since then two changes have been made; the first by an Order issue at the end of August which reduced the standard price of flour to 46s. per sack, and then by an Order made at the end of October which further reduced it to 41s. 6d. per sack. This latter price gives a minimum retail price for bread of 10½d. per loaf, 1d. per loaf less than the June price.

Milk.

The regulation of the supply and price of milk is provided for by an Act passed in 1936. This gives the Minister for Agriculture power to set up Milk Boards, representing producers and distributors to control the milk market in any districts designated for this purpose. On the recommendation of a Milk Board the Minister of Agriculture may establish statutory minimum wholesale prices for milk in the district over which the Board has control. The following prices to be paid by registered wholesalers were accordingly fixed by Orders issued by the Minister for Agriculture.

The prices payable by registered retailers for milk bought directly from registered producers are 2d. per gallon higher in the Dublin District, but in the Cork District, where in the period October 1, 1937 to April 30, 1938 they were 1d. per gallon higher, they are now the same as those payable by registered wholesalers.

(1) See the September 1938 issue of this Chronicle. p. 446.

In the Dublin District the unweighted average price for 1938-39 is almost 1d. per gallon higher than that for 1937-38; in the Cork District the average is only $\frac{1}{6}$ th of a penny higher ⁽¹⁾.

Minimum Prices to be paid to Registered Milk-Producers.

For each gallon of milk delivered at the premises of the producer to registered-wholesalers.

	May-July	August	September	October-April
<i>Dublin District:</i>				
1937-38	8 $\frac{1}{2}$ d.	8 $\frac{1}{2}$ d.	1s. 0 $\frac{1}{2}$ d.	1s. 0 $\frac{1}{2}$ d.
1938-39	8d.	10d.	10d.	1s. 2 $\frac{1}{2}$ d.

	May-August	September	October	November-March	April
<i>Cork District:</i>					
1937-38	8 $\frac{1}{2}$ d.	8 $\frac{1}{2}$ d.	1s. 0 $\frac{1}{2}$ d.	1s. 0 $\frac{1}{2}$ d.	1s. 0 $\frac{1}{2}$ d.
1938-39	8 $\frac{1}{2}$ d.	11 $\frac{1}{2}$ d.	11 $\frac{1}{2}$ d.	1s. 0 $\frac{1}{2}$ d.	...

	May-July	August-September	October-April
<i>Leinster District:</i>			
1938-39	8d.	10d.	1s. 4 $\frac{1}{2}$ d.

The funds required to cover the expenses of these boards are obtained by means of a levy on milk producers, wholesalers and retailers. In 1937 this levy made was by both the Cork and the Dublin Boards at the rate of $\frac{1}{4}$ d. per gallon. In September 1938 the Dublin Board reduced its levy to $\frac{1}{4}$ d. per gallon; the levy imposed by the Cork Board remains at the old rate.

Dairy produce.

The Dairy Produce (Price Stabilisation) Act, 1935 provided for bounties to be paid on exported dairy produce, with the object of stabilising the prices received by the producer. Funds for this purpose are provided by a levy on the sales of the products concerned. This system was in continuous operation till the autumn and winter of 1937 when the improvement in the external market led to a suspension of both bounties and levy.

Note: The coming into force of the milk "special designations regulations" described in the September, 1938 issue of this Chronicle p. 443 has been postponed till April 1939.

⁽¹⁾ Assuming that the price of 1s. 0 $\frac{1}{2}$ d. per gallon be established for April, 1939.

In the summer of 1938 new bounties and levies were introduced and the rates of these have since been increased. The latest changes were made by orders coming into effect of September 1, 1938 which made the following changes:—

Creamery Butter. — The bounty on creamery butter has been increased by 10s. per cwt. over the rates previously in force ⁽¹⁾.

An Order, coming into force of June 1, 1938, exempted from the levy fixed on May 1, 1938 at 6s. per cwt. on all sales of creamery butter established, all creamery butter put into cold store before September 17, 1938 ⁽²⁾.

Cheese. — The bounty remains at the rate fixed in May 1938, i.e. 5s. per cwt. and the rate of levy, at 5s. per cwt. on raw cheese and 7s. per cwt. on processed cheese.

In addition to these measures the Government has since April 1938 guaranteed to creameries a given return on their butter sales, a return independent of the price obtained on the export market. An Order ⁽³⁾ made in December 1938 fixed the guaranteed minimum price at 147s. per cwt.; this is an increase of 9s. per cwt. over the price previously guaranteed ⁽⁴⁾.

Pigs and bacon.

The supply and prices of bacon pigs and bacon in Ireland are regulated by the Pigs Marketing Board and the Bacon Marketing Board set up under the Pigs and Bacon Acts, 1935-1937. The Pigs Marketing Board has power to fix, and regularly fixes, two prices, an "appointed" price which is an actual price for pigs and carcasses of pigs sold to factories or otherwise, and a "hypothetical" price, which is the price the Board considers "would under normal conditions be the proper price thereof". Should the hypothetical exceed the appointed price each licensee or registered minor curer has to pay the Board a levy calculated on the basis of the price difference. The money so received by the Board is used to make payments to licensees or minor registered curers when appointed prices exceed hypothetical prices.

Both the "appointed" prices and the hypothetical fixed during the second half of 1938 show general decreases. Appointed prices were from 3 to 8s. per cwt., according to the grade, lower in November than in May; the prices fixed in the middle of December were, however, 1 to 2s. per cwt. higher than those fixed in November. "Hypothetical" prices were lower in November than they were in July by from 4 to 11s. per cwt., according to grade, but they also were higher in December by 1 to 2s. per cwt.

⁽¹⁾ Bounty on creamery butter "delivered in Eire and on which a levy at the appropriate rate has been paid", 20s. per cwt., on creamery butter "approved within the rules relating to the marketing of butter made by the Minister of Agriculture in 1937", and exported, 14s. per cwt on creamery butter "not approved" and exported 11s. per cwt. See the September, 1938 number of this Chronicle p. 444.

⁽²⁾ See the September, 1938 number of this Chronicle p. 444.

⁽³⁾ Creamery Butter (Minimum Prices) (No 3) Order, 1938.

⁽⁴⁾ See the September 1938 issue of this Chronicle p. 444. The price quoted is for lots of not less than 20 cwts; for smaller lots the price is 151s. per cwt.

The appointed prices have remained considerably below the hypothetical prices, and Orders have been made fixing the levies to be paid by licensed bacon curers, during the first half of 1939. The levy to be paid to the Bacon Marketing Board is to be at the rate of 4*d.* per carcass used; that payable to the Pigs Marketing Board, which had during the 1938 been at the rate of 4*d.* per carcass, is in the first half of 1939 to be 1*d.* per carcass.

The principal function of the Bacon Marketing Board is to control the quantity of bacon produced and of sales on the home-market. For this purpose the Board issues monthly "Production Orders" and "Home-Sales Orders." The quantities established for the months July-September 1938 were higher than those for the corresponding months of 1937. The considerable increase in production quotas has been absorbed mainly by the home-market, the export quotas for this period established by the Minister for Agriculture being only slightly higher than those for the same period of 1937.

Bacon Production, Home-Sales and Export Quotas.

(Hundredweight).

	Production		Home-Sales		Export Quotas	
	1937	1938	1937	1938	1937	1938
1st quarter	211,500	210,500	103,000	105,000	121,710	121,755
2nd quarter	216,000	206,000	111,900	116,000	110,978	123,049
3rd quarter	258,000	299,000	122,000	140,000	144,211	149,810
4th quarter	252,000	266,000	131,000	149,000	145,575	...
Total . . .	937,500	981,500	467,900	510,000	531,474	...

Prices for bacon on the external market have in recent months been considerably below the home-price. The import of bacon otherwise than under licence is prohibited; an order issue in May 1938 ⁽¹⁾ gave the Minister for Agriculture the power to attach very strict conditions of control to bacon import licences.

Sugar-beet.

The prices to be paid for sugar-beet in Ireland are fixed each year by negotiation between the Irish Sugar-Beet Growers Association and the Irish Sugar Company, a monopoly company on the Board of which are a number of Government-appointed directors. Failing agreement the prices are fixed by an independent arbitrator.

The 1938 prices were fixed by arbitration, and lengthy negotiations have so far led to no agreement on prices for 1939.

⁽¹⁾ Bacon (Regulation of Import) Order, 1938.

Livestock improvement.

Cattle-breeding Scheme. — The scheme is to be continued in 1939 on the same basis as in 1938. The regional Committees of Agriculture give financial assistance to farmers and others for the purchase and maintenance of bulls of high quality and the services of high quality bulls are made available at greatly reduced rates. The Cork Country Committee of Agriculture decided in January 1939 to increase the premium it will pay to each applicant selected for the purchase of a "premium bull" from £10 to £12.

Minimum agricultural wages.

The Agricultural Wages Board set up under the Agricultural Wages Act, 1936 made an Order in January fixing statutory minimum rates of wages payable to agricultural workers after the end of January. No change is made in the rates fixed in May 1938 for adult workers ⁽¹⁾. Junior workers between 16 and 18 years have however now been divided into two classes and separate minimum rates fixed for each class. Workers under 18 but not under 17 have now to be paid a minimum of 18s. per week of 54 hours, to be compared with 16s. 6d. for workers in the class, under 17 but not under 16, in which they were previously included ⁽²⁾.

ECONOMIC BIBLIOGRAPHY

A. SERPIERI: *Principii di economia politica corporativa*. Firenze, Soc. An. G. Barbera, 1938-XVII.

There have been many books of a didactic nature in Italy concerned with the economic and social doctrines of corporatism, some of which are of very great value. Among these Professor Serpieri's new book takes an exceedingly high place. It was written primarily as a text book and, while being an independent treatise on general theory forms an introduction to a course of agricultural economics by the same author which, to the great satisfaction of all students of this science, is to be published shortly.

A need is felt among economists for a carefully formulated exposé of the principles of corporative economics, given its rightful place in a logical system, and fitted without prejudice into the general trend of economic thought. This need is now filled by Serpieri's work, which is therefore destined to have a much wider importance than that of an ordinary text-book.

The author's well-known gifts — acuteness of vision, sure intellectual judgement and power of synthesis, not to mention his thorough training — are all revealed in this volume. In addition to an ordered and lucid exposition, the book offers a large number of original points of view, while some subjects are treated with a freshness of approach which is very effective. As an example, we may cite the chapter devoted to the process

⁽¹⁾ See the September issue of the *Chronicle* p. 348.

⁽²⁾ Considerably higher minimum rates are fixed for certain specified areas.

of production in an exchange economy, where — avoiding the hackneyed generalizations of many of the text books and treatises — a comprehensive view is taken of the mechanism and interplay of forces and factors in this process.

In spite of the frequent and superficial criticisms of the general theory of economic equilibrium, the author has, in our opinion, made a particularly felicitous and successful attempt to put this theory in its rightful place in contemporary economic thought.

In the last chapter of the book the fundamental nature of corporatism is examined and the fitted in with the general theory of production and economic choice. In the light of this the author considers the main practical experiments of Fascist economic policy, such as the back-to-the-land movement, the wheat campaign, land settlement and reclamation, and autarchy.

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MONTHLY BULLETIN

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AGRICULTURAL ECONOMICS AND SOCIOLOGY

CROP INSURANCE IN THE UNITED STATES OF AMERICA

CONTENTS:— Attempts at private insurance. — Report of the Committee of 1936. — Law of 1938.

Insurance against crop damage resulting from adverse natural conditions is of quite recent origin, and until lately has been very little developed. It is proposed in this article to give some account of its organisation and progress in the United States of America ⁽¹⁾.

Attempts at private insurance.

The first attempt at insuring crops against damage from adverse natural conditions was made by a private company at Minneapolis in 1899; previously hail and fire insurance were the only forms of crops coverage existing in the United States.

Between 1917 and 1921 certain fire insurance companies introduced three different types of insurances.

The first, which was offered in 1917 in the States of North Dakota, South Dakota and Montana, covered all the risks to which crops are liable with the exception of fire, floods, frost and want of proper care in cultivation ⁽²⁾.

The amount of insurance was fixed at 7 dollars per acre under wheat, flax, rye, oats, barley and spelt.

It has been noted ⁽³⁾ that this method, by which it is a very simple matter to determine the amount of insurance, could not be applied as it stands to a wide range of crops in different parts of the country varying greatly in yields, without either underinsuring certain risks or overinsuring others.

In the case of total crop failure, the company undertook to pay in full the amount of the insurance; in the event of partial loss, the compensation paid was equal to the difference between the policy value and the value of the crop harvested on the area insured, this latter value being estimated at the prices stipulated in the policy.

The companies operating this form of insurance could only to a limited extent fulfil their engagements, owing in part to severe droughts over large areas of the

⁽¹⁾ Hail insurance was dealt with in an article which appeared in this *Bulletin* of April 1934.

⁽²⁾ The following information on the three forms of insurance policies has been taken from the important study of VALGREN, V. N.: "Crop Insurance: Risks, Losses and Principles of Protection". *U. S. Dept. of Agriculture Bulletin*, No. 1043.

⁽³⁾ VALGREN, in the above study.

States concerned, in part to inadequate safeguards taken by the companies, and also to other causes.

The second form of insurance was introduced in 1920. This type of policy insured the farmer against all crop risks other than fire, hail, wind, tornado, failure of seed to germinate, or want of proper care at the time of sowing, cultivation or harvesting.

The amount of insurance to the acre was determined according to an estimated expenditure for each separate process involved in crop production, with an additional allowance for seed and for rental value of the land.

It as been pointed out ⁽¹⁾ however that this method, by which the amount of insurance is established on the basis of factors comparatively easy to determine, has the defect that it does not readily lend itself to a differentiation between good and poor farming.

In the event of total destruction of the insured crop, the amount of insurance was paid in full. In the case of partial loss, the compensation given by the company was as before equal to the difference between the policy value and the value of the crop harvested. This latter value was not however fixed in advance as in the first type of insurance, but on the basis of market prices at the time of adjustment. This form of insurance therefore gave protection to the farmer not only against crop damage but also against a fall in prices of the products insured. The consequences of a very heavy drop in prices had to be met by the insuring company.

The third form of crop insurance, introduced in 1921, covered the same risks as the type just examined.

The amount of insurance per acre was established according to a certain percentage of the average yield obtained by the policy holder during the past five years, such percentage being calculated in dollars on the basis of the prices ruling during that period.

This method, it is said ⁽¹⁾, has the merit of determining as accurately as possible past results, which undoubtedly form the most reliable basis for the required estimate of future results. On the other hand it is by no means easy to apply; few farmers keep records of yields from year to year and a large proportion of tenant farmers have not worked the farms they occupy long enough to compute a reliable average yield.

With this form of crop insurance the company undertook, in the event of total loss, to pay 75 per cent. of the cost of the field operations actually carried out at the date of the damage. Such compensation was not however to exceed 75 per cent. of the total insurance carried, nor the cost of replacing the whole or any part of the average harvest with products of similar kind and good quality, nor finally to exceed the margin, if any, between the market value of the crop actually harvested and the amount insured. Under this last provision the company was enabled to take advantage of price variations of the products in either direction.

⁽¹⁾ VALGREN, *Op. cit.*

In 1921 and subsequent years some companies continued to offer crop insurance, most of which however was on fruit and market garden produce; the amounts insured dwindled to very small proportions.

A small company in Kansas undertook in 1930 field crop insurance, insuring the farmer against crop damage and also against price falls; it had heavy losses owing to a severe drop in prices.

In short, the insurance companies failed in their attempts to organise crop insurance in the United States. The following were the main reasons for their failure: the limited area over which insurance was operated, with consequent limited spread of risks; inadequate data for establishing a proper actuarial basis, and finally the attempts to insure the farmer's income rather than the yield losses alone ⁽¹⁾.

Report of the Committee of 1936.

The subject of crop insurance was in consequence constantly before Congress and under consideration by the Department of Agriculture.

The assumption by the Government of far-reaching obligations on account of droughts and other disasters affecting crop production seemed to point the way to the desirability of Government action in planning crop insurance on a scale that would extend the risks over areas so large that a local crop failure would not involve failure of the whole scheme.

At the present time data are available enabling the nature of any crop insurance and advantage may be taken of the results of previous experience ⁽²⁾.

In September 1936 the President of the United States appointed a Committee under the chairmanship of the Secretary of Agriculture for the purpose of preparing a scheme of crop insurance. This Committee, in accordance with the directions given by the President in a letter to the Secretary of Agriculture, was to prepare a report and recommendations for legislation providing a plan for "all-risk" crop insurance. In preparing its report, the Committee was to utilise the extensive crop insurance being studied in the Department of Agriculture. The final recommendations for the drafting of a measure were to be drawn up with the advice and assistance of national farm organisation leaders.

The President added that he considered that it would be wise for the first year, to limit the application of the plan to one or two major crops. He stated that during the previous three and a half years the Federal Government had helped farmers to meet emergencies of two kinds: the collapse of prices resulting from the huge surpluses, and the crop failures due to drought. The time had come to draft permanent measures for safeguarding farmers against risks of either kind. "Crop insurance and a system of storage reserves should operate so that the surpluses of fat years could be carried over for use in the lean years".

⁽¹⁾ REPORT AND RECOMMENDATIONS OF THE PRESIDENT'S COMMITTEE ON CROP INSURANCE. Washington, 1936, p. 5.

⁽²⁾ REPORT AND RECOMMENDATIONS, p. 4.

Such measures should contribute to the general welfare: first by safeguarding the farmer's income against risks whether of crop failure or of price collapse; by protecting consumers against shortages of food supplies and against large price fluctuations; and lastly by providing an even flow of farm supplies and by stabilising the purchasing power of farmers, and thus assisting both business and employment.

The President added that he had been impressed by the work of the Department of Agriculture in developing actuarially sound methods, and particularly with regard to a crop insurance scheme which should include payment of premiums and compensation in kind. This plan should make it possible to base the premium rates on the productivity of the individual farms as shown by records of past production, of which a large number are already on the registers of the local committees of the Agricultural Adjustment Administration. By this method any payment by farmers of one region for the risks of another region would be avoided⁽¹⁾.

In the course of drafting recommendations for legislation on the subject the Committee not only invited the opinion and the collaboration of the national farm organization leaders, but also consulted representatives of hail and fire mutual insurance companies, of share companies and of firms warehousing agricultural products.

At the second meeting, called by the Committee for November 7, with the representatives of the national farm organisations, a resolution was passed recommending, *inter alia*, the strengthening of the programme for the maintenance of parity income⁽²⁾, as an aid to the stabilization of supplies of farm products in the interest of both producers and consumers. With this object, a permanent programme was recommended of surplus storage and loans on farm products, with voluntary crop insurance when it appears to be practicable. The resolution added that no programme of storage or insurance could be permanently effective unless accompanied by some effective regulation of production and of distribution of farm products.

It was noted at these meetings that the wheat-growers and their representatives displayed a special interest in crop insurance, and pronounced in favour of a system of crop insurance, combined with commodity loans on the wheat in storage⁽³⁾.

The representatives of share companies and of mutual hail and fire insurance companies, at a meeting held on November 6, 1936, were of opinion that a national programme of crop insurance would prove too large an undertaking for private companies, but added that they would be ready to co-operate with the Government. It was agreed that for this purpose the companies in question would appoint representatives to take part in further discussion of schemes.

(1) REPORT AND RECOMMENDATIONS etc. p. 28.

(2) "Parity income", in the vocabulary of the Agricultural Adjustment Act of 1938 means an individual net income from agriculture the ratio of which to the other net income from non-agricultural sources is the same as for the period August 1909 to July 1914.

(3) REPORT AND RECOMMENDATIONS etc. pp. 8 and 9.

As the proposed plan for crop insurance involves storage problems, the Committee also conferred with representatives of warehousing firms who also declared readiness to co-operate.

As result of these conversations with the different groups concerned, the Committee reached the conclusion that a crop insurance scheme should be carried out by the Government and that, in the first instance, the scheme should apply only to wheat.

It was considered that payment of premiums and of compensation should be either in kind, or in cash equivalent. Such a plan would have the effect of forming wheat reserve stocks in good years and releasing them in years of crop failure; in this way supplies would be ensured in the event of poor harvests and fluctuations in supply and in prices would be reduced.

The Committee was of opinion that any scheme of crop insurance which combined yield insurance and formation of commodity stocks would be outside the scope of private insurance. For such a scheme to succeed it would have to be co-ordinated with the agricultural policy as a whole, and in consequence it fell within the sphere of Government action.

As we have already said private companies which had attempted any comprehensive crop insurance, after repeated losses, had been obliged to abandon the enterprise completely,

It was considered that the business of crop insurance should be assigned to the Department of Agriculture, where it could be co-ordinated with the other functions of the Department. The local administration of the scheme should be mainly entrusted to local authorities and committees established by the Department to co-operate with the Federal agencies in charge of the application of the Agricultural Adjustment, Soil Conservation and Domestic Allotment Acts.

In the Committee's view, the amount of insurance on any one farm should be determined on the basis of the average yield of that farm, and farmers should be insured for a percentage of this average yield fixed in advance. In the event of the yield being less than the premium established, the farmer should receive compensation equal to the difference between the actual production and the amount of the insurance. By this plan an excessive insurance would not be provided for farms on which the average yields are low, nor would too limited a cover be insured to farms with high average yields.

In certain cases the compensation payments might be made in wheat; or, if more practicable, the wheat might be sold and the proceeds handed over to the farmer. With the approval of the Committee the farmer might be granted instead a certificate to sell as he saw fit; but in such a case the policy holder would have to meet warehousing expenses from the date fixed for the adjustment of the claim.

The premiums might also be arranged in terms of wheat. In favourable circumstances, the farmer might pay the premium by delivering wheat to a local elevator authorized to receive it; the wheat might be stored there or consigned later to another depot. Payment of the premium in wheat would frequently be impracticable however, and accordingly the farmers should have the option of making an equivalent cash payment. In this case, the insuring body would be

obliged to accept the cash payments and to buy elsewhere the equivalent wheat for storage.

The Committee was further of opinion that the premium rate should be fixed on the basis of two factors: experience of losses occurring on the individual farm insured and the loss experience of the whole area. Speaking generally, equal importance should attach to the two factors, but allowance must be made for exceptions where unfairness might result from the shortness of the period for which data were available.

The regional average is required for the adjustment of the premium rate, as the experience of the base period adopted by the Committee—the six years 1930 to 1936—might on individual farms not be representative of local risks. In the studies of unitary yields it has been noted that sometimes in certain regions and on individual farms, disasters like hail, floods, or insect infestations occurring at long intervals have resulted in very high losses per acre for the six years in question: over a longer period, these infrequent happenings would have had less influence on the yield average. The Committee remarked that within limits local committees should have discretion to make the necessary adjustments, and outside these limits the power should rest with the Department of Agriculture. If later experience should prove that the circumstances were not exceptional but came under ordinary risks, the special adjustments would be abolished.

The operation of the insurance scheme may be illustrated as follows: at the time of sowing, a wheat farmer could apply to the local Committee for a crop insurance policy; the Committee would then fix, on the basis of the previous records of his farm, the amount of insurance in bushels per acre sown and the premium to be charged, checking the acreage under tillage and the quality of the land sown by comparison with the land under wheat in the base years.

The Committee of Enquiry recommended a plan of premium payments which would enable farmers in years of abundant harvests to pay the premiums for the next five years. This procedure would have the advantage of contributing to the work of the "ever normal granary" system. By payment of premiums in wheat during years of plenty, an additional outlet for surplus wheat would be ensured which would tend to price stabilization.

Actually, as already pointed out, the premiums would be payable in wheat, or if the policy holder paid the equivalent in cash, that cash would be employed for purchase of wheat. Hence, in the years when the premiums exceed the compensation payments, a reserve of wheat would be built up. This reserve would form stocks only in the years of surplus crops, which by definition are those when the premiums exceed the compensation payments, and in deficitary years it would be used to meet compensation claims. Thus the stocks—and this is emphasised by the Committee—would not constitute a potential supply. Accumulation and release of reserves would be automatically regulated by the requirements of the crop insurance scheme.

The crop insurance scheme as proposed by the Committee is not to be substituted for other farm programmes under administration by the Department of Agriculture, but should on the contrary supplement these. The effect of the

carrying out of this scheme on the fluctuations in supply and in prices is subsidiary to and not an inherent part of the scheme.

The Government organization for crop insurance would purchase wheat for a total amount corresponding to the premiums paid in cash by the policy holders, and the purchases would be made at ruling market prices. The sale of the wheat acquired as premium payments would not be regulated by the insurance agency but would take place upon settlement of the losses at the time which seemed most advantageous to the farmer.

The advantages of such a crop insurance programme were emphasized by the Committee. Although limited to wheat, it would reduce considerably the necessity for seed and fodder loans, drought loans and other relief credits, and there would be economy of the public finances in the matter of relief and allowances.

These financial advantages would amply justify State contribution towards administration and storage costs. There should also be remembered the economic and other advantages of this form of insurance not only to the farming class, but also to consumers and the general public ⁽¹⁾.

Law of 1938.

On February 8, 1937, Senator James P. Pope of Idaho laid before the Senate of the United States a crop insurance bill based on the findings of the Committee. Provision was made for the foundation of a Federal organization of crop insurance insuring farmers against loss in yields of wheat from drought, flood, insect infestation, plant diseases and other causes. This measure was passed by the Senate of the United States at the end of March 1937 ⁽²⁾.

With certain amendments, it was incorporated into the Agricultural Adjustment Act and passed by Congress on February 16, 1938, forming Title V of this Act.

In the terms of the Act:

"It is the purpose of this title to promote the national welfare by alleviating the economic distress caused by wheat-crop failures due to drought and other causes, by maintaining the purchasing power of farmers, and by providing for stable supplies of wheat for domestic consumption and the orderly flow thereof in interstate commerce".

"To carry out the purposes of this title, there is hereby created as an agency of and within the Department of Agriculture a body corporate with the name "Federal Crop Insurance Corporation". The principal office of the Corporation shall be located in the District of Columbia, but there may be established agencies or branch offices elsewhere in the United States under rules and regulations prescribed by the Board of Directors".

"The Corporation shall have a capital stock of \$ 100,000,000 subscribed by the United States of America payment for which shall, with the approval

(1) REPORT AND RECOMMENDATIONS, pp. 10 to 18.

(2) THE COMMERCIAL AND FINANCIAL CHRONICLE, New York, Nov. 13, 1937.

of the Secretary of Agriculture, be subject to call in whole or in part by the Board of Directors of the Corporation....”.

“Any impairment of the capital stock described shall be restored only out of operating profits of the Corporation....”.

“The management of the Corporation shall be vested in a Board of Directors.....subject to the general supervision of the Secretary of Agriculture. The Board shall consist of three persons employed in the Department of Agriculture who shall be appointed by and hold office at the pleasure of the Secretary of Agriculture”.

“Vacancies in the Board so long as there shall be two members in office shall not impair the powers of the Board to execute the functions of the Corporation....”.

“The Directors of the Corporation appointed..... shall receive no additional compensation for their services as such directors, but may be allowed actual necessary travelling and subsistence expenses when engaged in business of the Corporation outside of the District of Columbia”.

“The Board shall select, subject to the approval of the Secretary of Agriculture, a manager... with such power and authority as may be conferred upon him by the Board....”.

For the purposes of crop insurance the Corporation has powers as follows:

1. beginning with the wheat crop planted for harvest in 1939, it is empowered to insure “producers of wheat against loss in yields due to unavoidable causes, including drought, flood, hail, wind, winterkill, lightening, tornado, insect infestation, plant disease, and such other unavoidable causes as may be determined by the Board: *Provided, however,* that for the first three years of operation under this title contracts of insurance shall not be made for periods longer than one year. Such insurance shall not cover losses due to neglect or malfeasance of the producer or to the failure of the producer to reseed in areas and under circumstances where it is customary to reseed”.

“Such insurance shall cover not less than 50 or more than 75 per cent., to be determined by the Board, of the recorded or appraised average yield of wheat on the insured farm for a representative base period”. The Board may prescribe adjustments of this average yield from considerations of equity.

“The Board may condition the issuance of such insurance in any county or area upon a minimum amount of participation in a programme of crop insurance formulated pursuant to this title”.

2. The Corporation is empowered further “to fix adequate premiums for such insurance, payable either in wheat or cash equivalent, as of the due date thereof, on the basis of the recorded or appraised average crop loss of wheat on the insured farm for a representative base period”. The Board may prescribe adjustments of the premiums from considerations of equity.

The time or times, and the manner of the collection of the premiums are fixed by the Board.

3. The Corporation is further empowered “to pay claims for losses either in wheat or in cash equivalent under rules prescribed by the Board. In the event that any claim for indemnity under the provisions of this title is de-

nied by the Corporation an action on such claim may be brought against the Corporation". The competent court is the court of the district in which the insured farm is located without regard to the amount in dispute. Any such action must be brought within one year after the date of the notification to the claimant of the refusal of the claim.

4. From time to time the Corporation may "purchase, handle, store, insure, provide storage facilities for, and sell wheat, and pay any expenses incidental thereto. In so far as practicable, however, the Corporation shall purchase wheat only at the rate and to a total amount equal to the payment of premiums in cash by farmers, or to replace promptly wheat sold to prevent deterioration; and shall sell wheat only to the extent necessary to cover payments of indemnities and to prevent deterioration.....".

Under this title of the Act, the Secretary of Agriculture is authorized to appoint from time to time an advisory committee, consisting of not more than five members, "experienced in agricultural pursuits", to advise the Corporation with regard to giving effect to the purposes of the law.

The sections of this title and subdivisions of sections are declared to be separable, and in the event of any one or more being held unconstitutional, the validity of other sections or parts of sections will not be affected.

F. ARCOLEO.

THE PROPORTION OF ESTATES AND OF NATIVE HOLDINGS IN THE WORLD PRODUCTION OF RUBBER ⁽¹⁾

World rubber production is dependent upon the output of both European estates and native holdings. This has not always been the case; in fact only since 1921 has there been any question of native rubber growing in the Netherlands Indies, while it was much later again that the disastrous over-production of rubber was ascribed to the sudden appearance on the market of the native grown product. As a consequence of this overproduction, prices fell on several occasions and there was serious alarm among planters.

The raw material known as rubber was, up to the beginning of the present century, the product of primitive exploitation of the Amazon forests; it was a forest and not an agricultural product. It is only since the establishment of plantations in Asia that it has been possible to include rubber as an agricultural product resulting from the scientific cultivation of *Hevea brasiliensis*. This tree, indigenous in the Amazon basin, quickly became the successful rival of all the other rubber plants, *Castilloa*, *Ficus*, *Manihot Glaziovii*, etc., in which cultivation trials had been made at the beginning of the century.

(1) This article was also submitted as a report to the VIIIth International Congress of Tropical and Sub-tropical Agriculture at Tripoli in March 1939, the agenda of which includes the item "European and Native Cultivation".

* Ec. 3 *Ingl.*

A brief summary may be given of the history of the large rubber estates. In 1873 the Botanic Gardens at Kew succeeded in obtaining from the Amazon, through Mr. Markham, some hundred *Hevea* seeds. Later the celebrated consignment of 70,000 seeds, collected and transported with immense difficulty by Henry Wickham (who became Sir Henry Wickham in 1920), reached Kew in 1876. From these seeds 7,000 plants were successfully grown at Kew, most of which were sent to Ceylon. From these plants and some others, grown from seeds imported later, have sprung all the vast plantations of *Hevea* in Asia, which now supply 98 per cent. of the world production of rubber, 41.3 coming from Malaya, and 36.2 from the Netherlands Indies. The plants were introduced into Ceylon and Malaya in 1876: while the first plants, 33 in all, reached Java from Penang as late as 1882.

During the first thirty or forty years of the cultivation in Asia there were many false starts and discouragements. This was intelligible; it was a question not merely of acclimatizing a new plant under conditions of climate and soil entirely different from those of the original habitat, but also of establishing a quite new agricultural technique, the "tapping". For this operation a new technique had to be found, since tapping as practised by the "Seringueiros" of the Amazon caused serious injury to the trees, and such a method clearly could not be followed on estates where each tree represented a substantial amount of capital owing to the high cost of the seeds and the heavy expenses of clearing and planting the land.

The rise in rubber prices between 1909 and 1912, the period of the first development of the motor-car industry, led to the formation of large companies for the cultivation of *hevea*, followed by a period of speculation in rubber and in land suitable for rubber-growing. For the establishment of new rubber estates use was made of the experience acquired: by this time it was known that *hevea* did not, as certain planters had at first supposed, need marshy soils but that it could be grown on nearly all soils at an altitude of not more than 2,000 feet or so.

Rubber estates planted by the new companies were laid out with great regularity, a definite spacing of the trees was observed, roads were well kept up, while lopping and pruning of the trees was carried out, with more zeal than discretion. Unfortunately, however, the disastrous method of clean weeding was employed, a system now abandoned on account of the losses in soil caused by the consequent erosion.

Planters of *heveas* have from the first recognised the value of research stations, where the problems of the cultivation and of the preparation of the product are studied by botanists and chemists. In illustration of the practical value of these investigations, the progress due to the selection of very productive trees and the propagation of clones coming from these trees may be cited. On estates where selection is practised it is now possible to obtain yields double and even treble of those on estates consisting of non-selected trees.

A very short time sufficed for the development of the large European estates. The area of these in the Netherlands Indies increased from 176 hectares in 1902 to 104,413 in 1910, to 352,717 in 1920 and to 573,014 in 1930; it is now some

600,000 hectares. It may be noted that in Malaya the area of estates larger than 100 acres was 763,380 hectares in 1930 and 818,183 in 1936; for earlier dates no figures are available except for certain parts of the country.

This expansion of hevea cultivation could not but exercise an immense influence on the life of the populations of the regions where rubber estates were established. A certain distinction should however be made in this respect between the Netherlands Indies and Malaya.

In Java the rubber plantations have, in most cases, been established where there were already other tree or bush crops, such as coffee or tea plantations worked by Europeans. So as to obtain the ground space required, on certain land tea or coffee cultivation was given up and replaced by hevea; the alternative was to clear the jungle. In Sumatra, hevea cultivation spread in the neighbourhood of Deli, long celebrated as a centre of European tobacco-growing. In this way, rubber soon gained an important position, without however forming the one and only resource of the regions where it was cultivated.

The position in Malaya is different. Statistics show that hevea occupies the leading place. Out of a total agricultural area of 5,059,965 acres, 3,288,691 acres, or more than three fifths, were in 1937 under hevea plantation; among the other chief products rice, coconut, pineapple and oil palm may be mentioned.

It is of interest to study the influence of rubber-growing on the general economy of a specific region. The Non-Federated State of Johore may be taken, the choice being made purely at random, as any of the other Federated or Non-Federated States would show similar conditions.

According to travellers' descriptions, in the first half of the XIXth century the Sultanate of Johore was in a state of complete desolation; according to the 1937 returns there are now 613,510 inhabitants (930 Europeans, 350 Eurasians, 267,500 Malaysians, 268,300 Chinese, 72,600 Indians, 3,800 of other nationalities). Thus two immigrant races, the Chinese and the Indian, are very important, and a large proportion of these races works on the hevea plantations. The total number of workers employed on private undertakings amounts in fact to 82,594, or more than 10 per cent. of the whole population. Precise figures are not available as to the proportion of this total engaged on the rubber estates but it would not be far from the truth to estimate it at 80 per cent. The total of the rubber exports amounted to 86,000,000 Straits Settlements dollars, while that of the total agricultural exports was 96,000,000 dollars.

The State revenue exceeds expenditure, and there is no public debt in spite of the heavy expenses for education and medical services. No other cultivation, with the possible exception of that of palm-oil, would have been capable of bringing about so fundamental an improvement in the prosperity of vast territories. On the other hand it is certain that the replacement of natural by synthetic rubber would bring about the irreparable ruin of all these regions.

The object of this first part has been to make clear the extent to which the large European estates have contributed to the welfare of the Asiatic countries, especially Malaya and the Netherlands Indies. It may be noted, in passing, that during the first years of rubber cultivation the necessary measures

for preventing soil exhaustion, whether by erosion or by a too intensive working, were rather neglected. The importance of conserving that most valuable capital of all, the soil, was however soon recognised by adopting measures against leaching and by using green manure and cover crops.

We now pass to "native cultivation". It is convenient to make a distinction between Malaya and the Netherlands Indies, the two countries here dealt with.

The Malaya statistics distinguish the areas occupied by "estates" from those occupied by "small holdings". The estates or large plantations are defined as holdings of more than 100 acres, the small holdings as those less than 100 acres. Theoretically there is no difference based on the race of the owner, but it is rare for a "small holding" to be managed by a European. On the other hand, "estates" are sometimes owned by Chinese, Malaysians or Indians.

The growth of the "small holdings" is due to the policy followed by the British administration, which, while encouraging the development of European or Asiatic capitalist plantations or estates, reserves much of the land for the requirements of the native population. In this connection the Malay Reservation Enactment of the Federated States of 1913 may be quoted, which empowers the governments of the States to select at their own discretion regions as Malayan reserves, upon which the alienation of lands to other nationals is prohibited.

In 1934 a special department was established at the Kuala Lumpur Central Rubber Station for the inspection of "small holdings"; some twenty inspectors are attached to this service, of whom three fourths are Malaysians, the remainder Indians and Chinese. The first success achieved by the new service was the improvement in the quality of the rubber produced by the small holdings. Small smoke-houses of special type were prepared for sheet rubber; their construction was simple and their cost price such that the small holders could easily purchase them. The success was so great that in 1936 there was not enough rubber of inferior quality on the market to meet the requirements of customers who wished to pay lower prices. Reductions were made moreover in the prices asked by the central establishments for drying and smoking rubber from small holders who did not possess the plant required for the treatment of the sheets. Efforts have also been made to encourage bud-grafting, to improve soils by drainage and by means of cover and green manure crops, and of diffusing information as to methods of control of the principal plant diseases. Attempts at improving tapping have not so far given satisfactory results.

The following information on the share of native cultivation in the total production of rubber in Malaya is taken from the statistics of 1937:

Area. — More than one third of the total area of rubber plantations in Malaya, viz., 1,278,309 acres out of 3,304,657 acres, consists of "small holdings".

Production. — More than one third of the total production of rubber, viz., 188,836 metric tons out of 503,494, comes from the small holdings.

Native cultivation of hevea in the Netherlands Indies attracted the attention of international trade for the first time when, about 1920, constantly increasing quantities of native rubber reached the ports of embarkation: in 1921 the

total exports from Sumatra and Borneo amounted to 5,998 tons; in 1922 to 25,517 tons, in 1923 to 53,507. It was considered, in view of these figures and as hevea trees begin to yield rubber at about 7 years of age, that the plantations from which the first large consignments of rubber came must have been planted about 1915. It has however been recently proved that the origin of native hevea planting is earlier: It was actually in 1905 that the Malay population of the coasts of Sumatra and Borneo, a population which had always maintained numerous trade relations with Singapore, began to take an interest in the young hevea plantations which were then to be seen in the neighbourhood of Singapore and the other ports of the Malay peninsula.

It is curious that the native rubber holdings were not formed in the same regions as the European estates, but in quite other parts of the Netherlands Indies archipelago. The beginning of the native cultivation was thus entirely due to the initiative of the populations of the Palembang and Djambi Residencies in Sumatra and of that of Borneo. The regions inhabited by these peoples contain immense virgin jungle and large rivers which are the only means of communication with the interior; they are thinly populated.

Between 1910 and 1914 a considerable trade in hevea seeds was reported, between Malaya and the districts of native cultivation in Sumatra and Borneo. The purchasers were Chinese and Malays who later sold plants to the cultivators.

The "*landang*" method is universally applied in the districts in question; this method consists in burning the forest so as to cultivate for a time a certain area of land which is abandoned after some years, and a new clearing undertaken. Rice is the principal crop; hence it seemed quite natural to associate the new cultivation of hevea with the old one of rice, and to plant the young heveas on the ricefields after the rice harvest was gathered. Another practice was to plant the heveas as soon as the land was cleared and a little while before the rice was sown. Rice was followed by another annual crop and this in its turn by another rice crop. By that time the heveas have reached a height which makes it impracticable to continue a catch crop. Thereupon cultivation stops; agriculture is so to speak replaced by silviculture.

The spacing of the trees is much reduced, 3.50 by 3.50 metres being the most usual distance. This makes it possible to plant 800 trees to the hectare, whereas on European estates there are not more than 300. In this way, hoeing soon becomes unnecessary, any growth of weeds is checked by the dense shading and the moist atmosphere which, at the same time, keep the soil damp.

The number of trees belonging to a single owner is considerable. Assuming that a peasant clears in one year a *bouw* (0.6 ha.) of jungle, growing food crops on each plot for at most three years, more than a thousand trees can be reckoned per owner after three years. This is an average reached after taking account of losses due to jungle fires and sales of plots of land. On the other hand there are some owners who are known to possess 20,000 trees and more.

During the first period of native cultivation, tapping was carried on by primitive processes which injured the trees. It was seen that these methods might prevent satisfactory regeneration of the bark, and methods of tapping have lately greatly improved as a result of the information made available by

the Government for the native planters. In addition the hevea trees have proved less susceptible to injury than was supposed at first.

Coagulation is effected in a very primitive manner. The latex, after collection in petrol tins, is coagulated on the spot by adding large quantities of alum. The coagulated mass is rolled out on a plank, using a bottle as roller. The cakes thus obtained are dried in the sun; for transport to markets all kinds of vehicles are used, bamboo rafts, carts, lorries, bicycles, etc.

Buyers who attend the inland markets buy up these cakes for resale to the large remilling establishments, the majority of which were in the early days at Singapore. There a product is turned out which, under the name of "blanket", has acquired a great reputation on the world market. Factories of this type are now installed among the plantations; in Sumatra and Borneo there were 16 in 1932, and in 1936 there were 45 with a total output of 53,000 metric tons of processed rubber, or about one third of the whole native production.

In the last few years decided progress has been reported in the preparation of rubber; the water content of the native product has been considerably reduced, the proportion of high quality rubber (blanket and cheet) has been increased, while that of low quality (scraps and slabs) has decreased.

The way in which the problem of labour in native cultivation has been solved is interesting. During the boom in rubber prices the tapping of the trees could not be done by the owner's family alone. Neighbours whose plantations were not yet fully grown were called in to help, and also Javanese already in the country; some workers were brought over from Java specially.

The system of payment of workers is quite original; it is called "*bagi dua*" in Malay, and is a kind of share working, where the owner and the workers divide between them the proceeds of the rubber sales. This agreement was entirely satisfactory both to the worker and to the employer. It is only during the periods of price decline in rubber that it does not answer. There are then two possible solutions: either the worker is dismissed and family work reinstated, or the share of the workers is increased, either by adopting the system of "*bagi tiga*" under which the workers receive two thirds, or that of "*bagi lima*" when three fifths of the price is assigned.

Native rubber-growing has shown itself admirably adaptable to the consequences of crises in the rubber market. The first reaction to a price fall is to send away as many workers as possible, and to have the work done by the owner's family. If prices continue to fall, tapping ceases and is resumed only when prices recover. The standard of life is easily adapted to the incomings: during boom periods all luxuries that can be obtained are secured: jewellery, house decorations, sewing machines, bicycles, motor-cars, etc. When the slump comes, rice-growing is intensified and rubber trees are not planted.

Rubber restriction, decided on in pursuance of the international agreement of May 7, 1934, came into force on June 1, of the same year. The Government of the Netherlands Indies, with a view to bringing the native growers into line with the restriction measures undertaken for the benefit of the whole rubber industry, native and European, felt it necessary to impose an export duty on native rubber. It was impossible at that time to impose a restriction

—such as was applied to the European companies—on the individual production of each native owner, since the necessary information was not available as to the number of the planters and trees, nor particulars as to areas planted.

Individual restriction only came into force on January 1, 1937. The necessary statistics had been collected and relatively precise figures obtained, making it now possible to estimate the place of the native small holdings in the total production of rubber of the Netherlands Indies.

On the basis of the 1936 returns, there were known to be 788,438 native owners of hevea plantations, possessing 582,382,725 trees out of which 140,647,781, or about one quarter, had not yet reached their full growth. The area—a calculation not based on topographical survey and consequently approximate—was about 681,187 hectares as compared with 595,777 for the total extent of the European estates at that time. The total area of the hevea plantations of the Netherlands Indies is estimated at 1,276,964 hectares, or 12,769 square kilometres, *i. e.* nearly half the area of Sicily.

As was done for Malaya, a concrete case may now be taken, *viz.*, that of the Residency of Djambi in Sumatra. This Residency covers an area of 44,923 square kilometres, or about the area of Switzerland. The greater proportion of this area is covered with virgin forest. The population is 245,272 inhabitants, including 120,386 native males. Among these are 43,189, owners of rubber plantations, or more than one third of the male population. An idea may thus be formed of the immense importance of the hevea cultivation for a people who previously knew nothing except rice cultivation or the arduous business of gathering jungle products, such as rotang, resins etc., and whose lives were passed in regions where no success had attended trials of other crops, such as coffee or cotton.

In the early stages, the native working of hevea was looked upon as a danger for the capitalist cultivation as, at certain moment, it flooded the world market and was even the most in demand. At the time of the world crisis, when adaptability was important, there was, so to speak, more elasticity about the supply than in that coming from the European estates. Further, the native-grown rubber caused complications in regard to the production restriction measures, intended to prevent over-production and to check fall of prices. No serious effects however supervened on the cultivation of the large estates; during the world crisis this also adapted itself to the circumstances, with moreover a reduction of the cost price to a level which makes it possible for the companies once more to pay dividends.

Native and European cultivation accordingly exist side by side in the great regions of production—Malaya, Netherlands Indies and Ceylon. Thanks to the energy and the perseverance of the managers or of the owners during crisis periods, both types of working have justified their existence. By means of the hevea, whether native-or European-grown, vast regions formerly poverty stricken have been transformed into regions where the native population have comfortable houses and sufficient food—where, in a word, they live well.

Humanity owes to more than one race the certainty of always having available sufficient quantities of rubber. It was Indians of the Amazon forests

who were the first to notice the strange qualities of the coagulated latex of certain wild trees; the Portuguese *seringueiros* risked their lives to penetrate into the "Green Hell" in order to tap the trees; English and American pioneers, were the inventors of the vulcanisation process; others carried the seeds from the Amazon to England, then to Ceylon and Malaya. Much too is owed to the British, Dutch and French planters and students who, during the first period of the cultivation, when no one could foresee the future, persevered in the cultivation or in the study of the hevea, and later established all the immense rubber estates which, by means of scientific selection, have succeeded in doubling yields. Lastly much is owed to the Malay peoples who, on their own initiative, established a new cultivation, which they have transformed in a remarkable manner, taking into account the economic possibilities of their country.

In conclusion, it may be affirmed that the cultivation of *Hevea brasiliensis* is feasible for any intelligent native population with a commercial mentality. Native cultivation does not necessarily mean a competition which is fatal to European cultivation. The two can exist side by side.

Dr. Walter BALLY.

INTERNATIONAL CHRONICLE OF AGRICULTURE

ARGENTINA

From 1933 there was a slow rise in the prices of raw materials, becoming more rapid in July 1936 and reaching a maximum in the first quarter of 1937. The fall in March 1937 was as sharp, if not as large, as the rise. Subject to the business cycle in industry, price movements for raw materials were in general downwards at the end of 1937 and during 1938, despite temporary recoveries which did not sensibly alter the general trend. Thus world prices for raw materials were much less favourable to Argentine exports in 1938 than in 1937.

Principal Crops exported by Argentina.

Year		Output in metric tons	Exports in metric tons for the corresponding civil year
Wheat	1935-36	3,850,000	(a) 1,724,362
	1936-37	6,782,000	(a) 4,023,180
	1937-38	5,029,500	(a) (b) 2,300,000
Maize	1935-36	10,051,206	8,381,600
	1936-37	9,134,530	9,087,303
	1937-38	4,424,000	(b) 3,000,000
Linseed	1935-36	1,510,000	1,487,926
	1936-37	1,935,000	1,802,048
	1937-38	1,539,400	(b) 1,300,000

(a) Wheat and flour. — (b) Provisional figures.

Further, not only were the 1938 harvests less satisfactory than those of 1937, but the advantage enjoyed by Argentine exports in the latter year owing to the big increase in world stocks and the poor harvests of wheat and maize in Canada and the United States disappeared in 1938, and competition from the surplus output of these commodities again had to be met.

Crop variations also had a great influence on the quantities exported; these were smaller by 55.8 per cent. than those of the corresponding period for 1937. The quantities of animal products exported varied little, maize, wheat and linseed accounting for 8.2 million metric tons of the total fall in exports of 8.4 million metric tons. During the first nine months of 1938 1,649,333 metric tons of maize were exported, compared with 7,371,137 metric tons during the corresponding period of 1937.

Variations in the value of foreign trade, as shown in the table below for half-yearly periods, have been even greater:

Argentine Foreign Trade:

In millions of pesos.

	1936		1937		1938	
	1	2	1	2	1	2 (a)
Exports	723.2	932.4	1,409.3	902.1	712.6	553.7
Imports	538.9	577.7	669.1	883.4	747.3	575.9
	+ 184.3	+ 354.7	+ 740.2	+ 13.7	— 34.7	— 22.2

(a) 5 months.

The figures for the value of exports show an increase in the first half of 1936 and reach a maximum during the first half of 1937 with the record figure of 1,409 million pesos. For the first half of 1938 the figure was only 712 million pesos — half the former amount — and it fell still further during the second half of 1938. These variations are explained by the remarks made above about world prices and harvests.

On the other hand, the variations in value of imports do not correspond exactly with those of exports. In the first place, as might be expected, the variations in the value of imports are smaller.

In the second place the variations are not synchronous, imports reaching their maximum in the second half of 1937 while exports reached their maximum in the first half. In other words, the value of exports was decreasing during the second half of 1937 while that of imports continued to increase.

The normal seasonal increase in exports (from January to April) is not enough to explain this disparity. The real reason for the high import figures is that some time must elapse before the exceptionally large profits obtained while the price of raw materials are high, can be realized and brought into circulation. Thus important orders for agricultural machinery and vehicles were placed before the fall in prices.

There has consequently been a slight fall in the balance of trade over the two half years of 1938. The regulation of imports remains necessary to enable interest payments on foreign loans to be continued. From November 9, 1938 the official selling rate of exchange for the pound sterling rose from 16 pesos (the rate of exchange in

force from December 10, 1936) to 17 pesos—a not insignificant monetary depreciation. The buying rate is maintained at 15 pesos per pound sterling.

Exchange control, introduced on November 29, 1933, continues, and the peso has three recognized rates, two official rates, (one for buying and one for selling) and the free rate. Foreign bills for regular exports (excluding wool) must be sold to the Central Bank at the official buying rate. Since January 2, 1936 the Bank has been ordered to sell them at the official selling rate to the holders of permits supplied by the exchange control commission. Bills for "supplementary" exports, freed blocked accounts, transport, etc, are dealt with on the free market at the free rate. Exchange control is very important for Argentina's agricultural policy, as agriculture is subsidized from the gains made by exchange operations.

Thus in 1937 and 1938, Argentina's economic position was first very prosperous and then distinctly less satisfactory. Prospects for 1939 are favourable and crop estimates are very satisfactory. It might be said that having made up in 1936-37 the losses suffered during the great depression, Argentina underwent a further recession in 1937-38; but learning from former experience, she has been able to stave off a serious depression by means of her very effective system of regulation.

Agricultural policy, while introducing no important innovations of principle, has been marked by increasing Government action; restricted in 1937 and more intense in 1938, it now affects all branches of agriculture.

Trade policy and immigration agreements.

Argentina conducted a very active trade policy during 1937 and 1938, and a great number of agreements were signed. These agreements, the majority of which were based on the most-favoured-nation clause, were drawn up for a short period and were easily renewable. They come under three heads.

The first class includes a series of treaties based on the most-favoured-nation clause concluded with certain European countries playing a relatively unimportant part in Argentina's foreign trade.

1. With Czecho-Slovakia (May 21, 1937). In an appendix Czecho-Slovakia allows Argentina to import fresh grapes by means of lower tariffs, while Argentina allows the import of Czecho-Slovak hops.

2. With Hungary (December 24, 1937).

3. With Poland (August 31, 1938). An additional agreement fixes the maximum duties for imports into Poland of Argentine potatoes and grapes during certain periods of the year.

4. With Greece (November 23, 1938). An appendix to the treaty fixes the maximum duties for imports into Greece of certain Argentine products (hams, cheeses, butter, skins, tannin extracts, maté, wool, etc.) and for certain Greek products (tobaccos, raisins, sponges) into Argentina.

5. With Lithuania (November 25, 1938).

In the second group come trade agreements with Argentina's neighbour States.

1. With Peru (February 3, 1937). Before signing an actual commercial treaty, the *modus vivendi* for the relations between the two countries was regulated by an agreement: an annual quota of 10,000 metric tons of Argentine wheat is admitted duty free into Peru; Argentina has lowered the duties on non-refined petroleum from Peru in such a way that each year this reduction compensates for the free allowance granted by Peru to Argentine wheat; in certain cases the wheat quota may be increased.

2. With Chili (February 18, 1938). A supplementary agreement to the trade treaty of June 3, 1933 adopted the most-favoured-nation clause. Further, Chili granted prefer-

ential treatment to imports of cattle (in particular, 60,000 head of cattle are admitted free each year) and of books; Argentina grants this treatment to dried vegetables, garlic, wood and certain mineral products from Chili.

The third class covers commercial agreements reached with countries holding an important place in Argentina's foreign trade.

1. With Italy (March 4, 1937). A supplementary agreement to the trade treaty of 1894 confirms the application of the most-favoured-nation clause, while a further convention deals with payments. Large quotas are fixed annually for the following Argentine products: wheat, maize, wool, chilled and frozen meat, linseed, etc. To balance this Argentina agrees to pay the official rate of exchange in all payments for goods imported from Italy up to a value equal to that of purchases made by Italy from Argentina. Trade between these two countries has been greatly increased by this agreement.

2. With France (February 18, 1938). An additional agreement to the convention of August 1932 was signed which extends most-favoured-nation treatment to internal duties. It grants Argentina 10 per cent. of the bran quota, 30 per cent. of the quota for maize imported into France under the direct imports system, 30 per cent. of the quota for maize imported under the special system of temporary imports, and the whole quota of maize for starch works, 60 per cent. of the chilled mutton quota, 10 per cent. of the frozen meat quota, 25 per cent. of the tinned meat quota and 10 per cent. of the butter quota. France receives reductions in the duties on her brandies. The clauses dealing with payments give France a type of exchange not less favourable than that granted to other countries. Bills for regular exports of Argentine products into France are allotted, after deducting a reasonable amount, in the following order: towards the public debt, in settlement for goods of French origin imported into Argentina and towards financing French undertakings in Argentina.

3. With Germany. The trade treaty signed in September 1934 has been renewed for 1937 and 1938. Supplementary clauses arrange for the improvement of trade between the two countries and, in particular, payments are facilitated. Import quotas for chilled meat have been substantially increased.

Finally, immigration agreements were reached with Switzerland (July 6, 1937) Denmark (September 21, 1937) and the Netherlands (April 19, 1937 and September 16, 1938). These agreements allow colonization by selected types of immigrant in the sparsely populated districts of the country, account being taken of the interests of each of the signatory States. Apart from these, general measures have been taken from December 1, 1938 which aim at restricting immigration.

Argentina has therefore been pursuing a very active commercial policy for the last two years. To coordinate the work of the different organisations concerned a permanent interministerial commission for economics has recently been formed [Decree of November 29, 1938-December 3, 1938 ⁽¹⁾]. It consists of representatives of the Ministries of Foreign Affairs, of Finance and of Agriculture; it prepares commercial negotiations by studying the home and foreign markets; studies the effects of commercial treaties on the national economy, and keeps the Government informed of commercial developments so as to enable it to take suitable measures.

As regards the customs tariff, not only are imports taxed by a 10 per cent. duty, but from December 1, 1938 (Decree of November 7, 1938) a permit must first be obtained for all imports.

(1) The first date is that of the signing of the decree, the second that of its publication in the Boletín Oficial.

Cereals and linseed.

The output and export of cereals were large during the 1936-37 season but greatly decreased during 1937-38. Prohibitions on exports of flour and wheat were maintained for only a short period. They were introduced in November 1937 but gradually withdrawn as crop expectations showed that there would be no shortage of home supplies of these goods.

To secure more rational use, several decrees (February 14, March 10, 1938 and October 31, November 5, 1938) introduced a classification of flours by which these goods can be employed in the uses to which they are suited. The National Commission for Grain and Elevators continued its operations and the plan for constructing elevators was proceeded with. From January 1, 1939 (Decree October 24-November 2, 1938) 0.02 pesos per quintal of cereals and linseed exported had to be paid into the account of this commission.

In November 1938 the Wheat Regulating Committee was again instructed to maintain cereals and linseed prices. The Committee was formed on November 29, 1933, and is financed by the Exchange Control Commission. It maintained the prices of wheat and linseed till December 1936 and of maize up to January 1937. The rise in prices then made its operations unnecessary. But in 1938 the fall in prices called for further intervention. A Law of October 7-October 17, 1938 permitted the Government to establish minimum prices for wheat, linseed and maize, etc. or to grant subsidies to producers in support of national production. The minimum prices and subsidies, which apply only to the next crop, are fixed so that "costs of producing cereals and linseed in the different parts of the country may be protected". The necessary funds are supplied from the difference between the rates of exchange, and if this is insufficient the National Bank of Argentina makes advances. By a decree of November 14-23, 1938 the basic price per quintal of wheat (No. 2 specific weight: 78) was fixed at 7 pesos, and per quintal of linseed at 13 pesos. On November 4 the prices of the products were respectively 6.05 and 12.62 pesos on the Buenos Aires Stock Exchange.

Meat and cattle.

During the last few years the volume of exports of chilled meat changed relatively little, but there was a considerable increase in output owing to the increase in home consumption. The Government attempted to improve the distribution of this product, and while the National Meat *Junta* continued to function, the "Cattle and Meat Market" Company was formed by a decree of May 31-June 25, 1937. It is in the form of a commercial company whose shareholders must be stockraisers. The shares are personal and may only be transferred with permission of the Company. The Company is run by a Board of Directors who are elected from among the shareholders at the General Meeting. This Company and the National Meat *Junta* work in close cooperation, and the charges for services rendered by the Company must be approved by the *Junta*.

The company sets up, buys and administers cattle and meat markets, refrigerators and warehouses; these establishments enable meat and cattle to be stored, classified and sold under conditions favourable to consumption and conforming to hygienic requirements. Although the home market absorbs a continually increasing part of the national output, the Government has also made efforts to maintain exports. To indemnify beef exporters for the duties that must in future be paid on importing their products into the United Kingdom, they receive provisionally (from January 1937) a

subsidy of 1.65 pesos per pound of beef. The Exchange Transactions Fund pays the necessary sums to the National Meat *Junta*, which then redistributes them.

At the end of 1938 the drought led to an increase in supply and a decrease in exports of meat, so that prices fell. By a decree of December 8-13, 1938 subsidies were granted from December 12, 1938 to March 31, 1939 on the sale of cattle (mixed bred) for immediate slaughter, whether for export or home consumption. This regulation will remain valid until June 30, 1939 for animals coming from the *Littoral Norte* and sold directly to industrial concerns. The *Junta* will receive the money required to pay the subsidies from the Exchange Fund.

Wool.

An advisory Wool Committee consisting of officials and representatives of those interested was formed by a decree of April 26-May 24, 1938. It gives advice to the Ministry of Agriculture on legislative measures, helps to prepare international agreements and suggests to the Institute for Wool Research the lines of its work. To ascertain the quantities of stocks and to take measures required to improve the market, a decree of May 11-28, 1938 made it obligatory to declare periodically to the Institute for Wool Research the quantities of wool on the market, in warehouses and in industrial establishments, etc.

Milk and milk products.

The economic importance of milk products and the fact that milk is a primary commodity led the Government to set up an "arbitral tribunal" to fix the prices of milk both for direct consumption and for manufacturing purposes (Decree of August 19 to 25, 1937). The lack of rationalized production in the milk trade and industry had led to an inequitable distribution of profits. The "arbitral tribunal" fixes equitable prices, prevents conflicts and protects the interests of consumers. The tribunal consists of a Chairman appointed by the Government, two representatives of production, one industrial representative and one trade representative. A Department for the Milk Industry (Decree of February 11-March 10, 1938), has also been formed, which replaces the regulating *Junta* for the milk industry and the independent *Junta* for supplying milk to the capital. This department is concerned with the production, industry, trade and transport of milk products within the country, and with exportation. Registration is obligatory for all persons whose work is connected directly or indirectly with the milk industry. The Department is assisted by an advisory council consisting of officials and representatives of the producers.

To prevent margarine being sold as butter and to ensure that this product is hygienically prepared, production and trade in margarine have been regulated. (Decree of January 15-February 15, 1937). Margarine producers are obliged to register with the Department for Stockraising and they may only carry on their work if their factories fulfil certain hygienic conditions. Further, the composition of the products is regulated and they are marked in a definite manner according to quality.

Wine.

The wine *Junta*, set up by a law of December 24, 1934, has been carrying out its task of ensuring that "the national output of wine does not exceed the normal requirements of the population". Further, a law of January 29, 1937 (February 17, 1937) arranged for the wine *Junta* to acquire vineyards covering an area sufficient to reduce the annual output of grapes by 2,600,000 quintals. Lands bought from vine-growers

pass to the State and are divided up into small holdings, which are then sold to the families of agricultural labourers who must agree not to cultivate the vine. Selling prices are not high and financial assistance from the State enables purchasers to attain independence by means of annual payments.

Thus the vine area is rapidly being reduced. At the time of the 1937 harvest, the area of vines in Argentina had already been reduced by 4,125 hectares, being then only 145,687 hectares.

The same law (January 29, 1937) reinforces the marketing organization for wine so that gluts may be avoided. Each year before June 30, the executive fixes, at the suggestion of the Wine *Junta*, "the annual surplus of wines which should be prevented from coming on to the home markets to avoid exceeding their capacity of absorption". For the current year this surplus was fixed at 2,830,500 hectolitres (Decree of June 29-August 9, 1938). Each vine grower must hand over a certain part of his crop to the *Junta*. The *Junta* may then either sell the wines so bought on the home market if required, or export them, or convert them into derivative products. The law also empowers the *Junta* to take all measures to improve the distribution of this product and to increase consumption (with the assistance of an auxiliary cooperative organization).

In furtherance of these attempts to organize viticulture, the Government passed a series of new regulations in a law of August 12-29, 1938. A central Department for vine-growing and the wine industry, attached to the Ministry of Agriculture, was formed, which "has powers to deal with all matter relating to the wine and vine industry, the supervision of trade and technical inspection". A national Commission for the wine and vine industry, consisting of officials and representatives of the vine-growers submits its views and proposals about measures proposed.

The same law gives a precise definition of the various alcoholic products (wines, ciders, liqueurs etc.) and decides which processes are legitimate and which should be prohibited in the manufacture of these products.

A system by which declarations of harvests are obligatory has been introduced to allow the Central Department for vine-growing to follow market developments. The home trade in wines is very strictly controlled, the import of foreign wines and alcoholic goods being permitted only if certain conditions are fulfilled. The Central Department of the National Chemical Laboratories conducts analyses to ensure that the law is being observed; penalties are prescribed.

There are also many laws regulating the production of wine alcohols and small wines, etc.

There has thus been a great deal of Government intervention; that it has been effective is shown by the rise in prices since 1936.

Red Wine in Tank Wagons at Mendoza.

Indices (1930 = 100)

1934	78.2
1935	83.9
1936	80.7
1937	90.7
1938 (first nine months only)	89.7

Potatoes.

A decree of October 26, 1934 empowered the Ministry of Agriculture to deal with difficulties affecting the potato market. An administrative commission, formed provisionally, to carry out this work, decided to have all transactions centralized. By this means prices and weights of the goods could be supervised, a classification according

to quality introduced and a scientific inspection of sanitary conditions maintained. In future (Decree of January 27,-February 17, 1937) the working of the market will be directed by an official of the Ministry of Agriculture who will apply the regulations. An advisory committee consisting of representatives of producers and dealers gives its opinions and proposals. In case of disagreement with the official directing the market, the Ministry of Agriculture settles the dispute. Thus the separate organizations are effectively supervised.

Encouragement of tobacco production.

The inadequacy of the national output and the high prices of imported tobacco decided the Government to extend the cultivation of this plant. No technical difficulties arise since there are parts of the country where all the conditions required for the successful cultivation of tobacco are found.

A decree of February 5-12 April 1937 determined the organization and functions of the Department for tobacco production. The Department, which is attached to the Ministry of Agriculture, consists of a technical and an economic section. It regulates plantings and fixes the areas in which the different varieties may be cultivated. It prepares statistics, conducts sales research and improves storage and transport conditions. Further, to make supervision stricter, a decree (May 11-28 1938) made it obligatory for all persons concerned with this cultivation, trade or industry to register with the department for tobacco production.

Standardization of agricultural equipment.

A National Commission for the Standardization of Equipment (Decrees of December 14, 1937, October 5-31, 1938 and October 7-31, 1938) proposes to the Government, after consideration, rules for standardizing agricultural equipment. It is assisted by the Institute for the Rationalization of Equipment, an organization for coordinating technico-scientific research.

Fruit trade.

A decree of February 12-to March 10, 1938 regulates all matters relating to the quality, marks of origin, arrangement and packing of dried fruits for the home and export markets. A decree of September 2-7, 1938 laid down similar regulations for imported dried fruits to ensure equality of treatment between the native and imported products.

Campaign against insects and cattle diseases.

Much has been done in the fight against locusts. A research institute, working under the Department of Vegetal Hygiene, was set up (Decree of June 21,-1 September 23, 1937) and has been granted credits amounting to 10,000,000 pesos for the purchase of materials and for preliminary work (Decrees of June 21,-January 13, 1938 and October 7-17, 1938). Prices of metal fences were kept low, so that landowners could buy them easily. Thus the high costs of transport and upkeep which were previously borne by the State have been avoided. (Decree of October 11-November 4, 1937).

The campaign against different types of tick on cattle and domestic animals has been made obligatory in all regions (Decree of October 7-17, 1938). Landowners must attend to the animals on their own farms and use the State equipment. An initial grant of from 4-500,000 pesos has been made and it is expected that in future 500,000 pesos will be paid annually.

Internal settlement.

The lands bought by the State with a view to reducing the output of wine (Law of November 29, 1936) were used, after being cleared of vines, to form small peasant properties. These "enable the family to become attached to the soil and ensure intensive and independent production". A decree of February 17-March 15, 1938 set up, a commission for the administration of settlement lands independent of the Department of Agriculture. This commission divides up the lands into pieces of under 5 hectares and fixes their value. The law determines the conditions which must be fulfilled to obtain one of these pieces.

Farm credit.

The arrangements for farm credits have been modified by several laws and decrees. According to a decree of April 3-6, 1937 no person or institution granting mortgage loans might accept deposits unless it set up an independent section for mortgage operations with separate capital or funds obtained from the sale of bonds. At the request of the National Mortgage Bank, the maximum area for settlement allotments was fixed (Decree of October 26-November 4, 1937) at 200 hectares, and the maximum amount of individual loans to colonists or purchasers at 50,000 pesos. A decree of March 26-29, 1938 allows the National Bank of Argentina to grant loans for the purchase of seed and draught animals to settlers in areas affected by the loss of the last crop. The total amount of such loans must not exceed 9,000,000 pesos. A decree of August 31-September 26 (modifying the law of May 15, 1933) prescribes regulations relating to credit operations, mortgages, and the length and amount of loans. A decree of September 25, 1938 enables stockraisers to obtain credits on easier terms. A law of October 10-14, 1938, supplemented by a decree of November 15-31, 1938, introduces a new system for bonds with a mortgage guarantee.

LIBYA

Libya is agriculturally a region of arid climate. Compared with the total area the cultivated and cultivable parts are few and limited. But despite the infrequent rainfall and the absence of permanent water-courses there is no absolute lack of water owing to underground phreatic and artesian waters. In Cyrenaica these are supplemented by numerous springs, while in Eastern Jebel the rainfall is more regular and plentiful.

However, the only part of Libya which is cultivable, and therefore colonizable, lies along the coast, consisting of the Jefara and the area contiguous to Jebel, in Tripolitania, and of the plateau of the same name and of part of the Bengazi plain in Cyrenaica.

The chief crop in Tripolitania is the olive. Almonds and vines are also important. On the Jebel, in the Tigrinna area, the cultivation of oriental tobaccos is being undertaken on a large scale by means of a colonization plan settling 500 families in the Garian.

At present cereals are the principal crop in Cyrenaica, chief among which are barley and, to a smaller extent, wheat. The natives generally grow these two cereals, the Italians on the other hand preferring olives, almonds and grapes, though they grow some wheat also.

According to the first census of Italian colonists' farms in Libya (April 21, 1937) ⁽¹⁾ which supplied data on certain agricultural aspects of this territory ⁽²⁾, the farms of Italian colonists were distributed thus:

Classification of Farms according to Type of Tenure.

Province	Total		In concession		In full ownership		Part in concession and part in ownership		In State ownership	
	Num-ber	Area: hectares	Num-ber	Area: hectares	Num-ber	Area: hectares	Num-ber	Area: hectares	Num-ber	Area: hectares
Tripoli . .	593	98,429.85	332	86,605.66	235	7,285.30	15	4,249.91	10	288.98
Misurata . .	30	28,580.61	17	27,310.52	11	250.65	—	—	2	1,019.44
Bengazi . .	193	32,443.64	25	19,966.57	156	7,145.36	3	5,073.00	9	258.71
Derna . .	24	28,295.01	11	25,619.98	13	2,675.03	—	—	—	—
Total . . .	840	187,749.11	385	159,502.73	416	17,356.34	18	9,322.91	21	1,567.13

A classification by size of the same holdings gives 176 of 5 hectares and under, 227 of from 5 to 20 hectares, 159 of from 20 to 50 hectares, 133 of from 50 to 200 hectares and 145 above 200 hectares.

Of trees, dry and semi-irrigated, olives covered 23,735 hectares, almonds 3,873, vines 1,629, others, 552.

There was also joint production of these trees, 28,419 hectares with olive and almond trees, 8,188 hectares with olive trees and vines, 164 hectares with almond trees and vines, 1,511 hectares with olive trees, almond trees and vines and 2,100 hectares with other trees.

According to the census there were 5,514 ploughs, 1,219 harrows, 971 *mahascic*, 288 cultivators, 279 sowing machines, 180 tractors, 127 mowing machines, etc.

There were 2,097 wells, 656 cisterns and reservoirs with a total capacity of 83,217 cubic metres, and 1,528 basins for collecting water with a total capacity of 623,851 cubic metres.

Many different methods of pumping the water were used.

The farms covered by the census were adequately supplied with dwelling houses, barns, storehouses, cattle sheds, dung hills and silos.

The numbers of livestock were 2,046 horses, 737 asses, 1,299 mules and hinnies, 592 dromedaries, 7,714 head of cattle, 73,202 sheep, 9,199 goats and 1,707 pigs.

Native agriculture is intensive in the *suani*, small irrigated gardens where the water is drawn from the sub-soil by wells. Dates (more than 3 million date palms with an output of from 300,000-400,000 quintals of dates par annum) are the main crop of the *suani*. Barley, the staple food of the native, is the chief cereal crop. The principal industrial crops are tobacco and henna, olives and other fruits coming next.

⁽¹⁾ *Gli Annali dell'Africa Italiana*, 1st year, No. August 2, 1938. Ministry of Italian Africa, Rome. The census was carried out through the offices of the General Government of Libya, the Bureau of Studies of the Ministry of Italian Africa, and the Central Institute of Statistics of the Kingdom of Italy.

⁽²⁾ By the Decree-law of January 9, 1939, No. 70, the four provinces of Libya were annexed to the territory of the Kingdom of Italy. At the same time, Libya retains its own legal character and its financial autonomy. On October 31, 1938 the population of Libya was 846,854, of which 76,894 were Italians and foreigners and 769,960 natives.

Ginanal are important in the more arid areas. Dry crops have to be used, the chief being olives and fruits, including grapes.

Among self-sown plants, *alfa* and *esparto* are important both being utilized for extracting cellulose.

As regards external trade, imports (in million lire) were 398.1 in 1935, 623.1 in 1936 and 623.3 in 1937; exports, 61.1, 107.7 and 122.4

Of the imports, 87 per cent, come from Italy and consist chiefly (177 million in 1937) of cattle, foodstuffs and tobacco; and (61 million) of textile fibres and their products, etc.

Exports go almost entirely to Italy and consist chiefly of raw hides, raw sponges and wheat.

Colonization scheme.

By a royal decree of May 17, 1938 ⁽¹⁾ Libya is to be colonized by forming small rural holdings. The Government is working out a plan for carrying out this colonization, and decides on the areas to be colonized, the number of farms in each area, and the type of farm best suited to the district. It will also undertake the formation of villages, or "rural centres", the building and maintenance of highways, of water-works, of telegraphic and telephonic communications, etc. Each rural centre must have premises for public services and public utilities, church, school and medical dispensary.

The Institute for the Colonization of Libya and the National Fascist Institute for Social Thrift decide on the distribution of lands and the constitution of small farms, the Libyan Government making free grants from the State territory of lands needed for this purpose. The two Institutes carry out the initial work of land and farm improvement in the 15 colonization districts, by erecting houses and farm buildings for the settlers, and works for supplying drinking water and water for irrigation, by clearing land and by providing the initial supplies of livestock and equipment.

For the five financial years 1937-38 to 1941-42 the Libyan Government will be granted an annual sum of 100 million lire to cover the expenditure arising from the above plan.

In applying this plan 1,800 Italian families, comprising 20,000 persons, have recently been settled in Libya. The majority of the colonists were chosen from small proprietors whose holdings in Italy were insufficient to guarantee subsistence; or from *métayers*; and in exceptional cases from agricultural labourers on condition that they had already been receiving as payment a share in the produce of the land (*compartecipazione*). The families chosen averaged 9 members.

The Libyan Government has equipped 3 villages and constructed 7 others to receive the colonists. The Tripolitanian coast received 1,000 families and the Cyrenaic Jebel 800.

Investigations undertaken during the last few years have shown that these areas are similar in certain respects to the areas from which the colonists came. They are suitable for arable farming and animal husbandry.

The land occupied by small farms is more than 53,000 hectares. and will undergo land and agricultural transformation over a period of from 2 to 3 years on the average, with a maximum of 5 years.

The setting up of the farms is financed entirely by the State, 30 per cent. being paid in money subsidies and 70 per cent. by credits. The loans are interest-free for the first five years; then interests at 2 per cent. is charged for three years. The capital

⁽¹⁾ *Gazzetta Ufficiale del Regno d'Italia*, No. 131, June 10, 1938.

will only be paid off from the ninth year, in 27 annual payments, including interest and amortization. The colonists must also pay a sum, amounting to not more than 1 per cent. of the cost of their own farms, towards general and administrative expenses.

Each farm is provided with a house containing three furnished rooms, with kitchen, shed, stable, pigsty and a well or cistern.

There are three types of farm. Firstly irrigated farms, numbering 410, situated in districts with an average rainfall not exceeding 150 mm. per annum. These have an area of 15 hectares, 10-12 hectares being irrigated, the rest dry. The chief crops will be wheat, leguminous plants and industrial plants (cotton, groundnut, hemp, etc.). The water for the 600 irrigated hectares is supplied from 16 artesian wells. Each well will supply 25-30 farms with a total irrigated area of 250-300 hectares and equipped with a network of canals. The livestock of each farm consists of 6 head of cattle and one mule.

Secondly there are the partly dry farms, numbering 338. They have a total area of 25-30 hectares, 5-6 hectares being irrigated and 20-25 dry. Here the average rainfall is 250-300 mm. The land is distributed between olives (12 hectares), almonds (5 hectares), grapes and olives (3 hectares), irrigated area (5 hectares). Of the last, 1-2 hectares are used for citrous fruits and the remainder for wheat, fodder plants, industrial crops, etc. Livestock is the same as for the first type.

The farms of the third type are not irrigated at all. They are situated in the regions with arid soils on the Tripolitanian and Cyrenaic plateaux, at an altitude varying between 300 and 800 metres. The lack of water for irrigation is compensated by a very abundant rainfall and other climatic factors. Rainfall varies between 300 mm. per annum near Tarhuna (Misurata) and 400 mm. in the Barce region. In the Cyrene area it reaches 600-700 mm.

There are 232 new farms on the Tripolitan plateau, with an average area of 50 hectares. The land is distributed between: (a) trees: olive trees (20 hectares), almond trees (7 hectares), olives and vines (5 hectares) and other fruit trees (0.5 hectares); (b) seed crops: 15 hectares. Livestock consists of 4 head of cattle and one mule.

The new farms on the Cyrenaic plateau, numbering 820, have an average area of 30 hectares, and the land is distributed between: (a) trees: olive trees (7 hectares), almond trees (2 hectares), vines (1 hectare), other fruit trees (0.5 hectares); (b) seed crops (19.5).

This region is the part of Libya best suited to the cultivation of cereals.

The livestock of each of the farms of this region consists of 6 head of cattle and one horse.

On taking possession of the farm the colonist found the land cleared and ready for ploughing for the autumn sowing. He was given a plough and other equipment and certain stores for his personal requirements.

At first the colonists will receive a monthly wage which will decrease proportionately as the farm becomes more productive. When the farm is producing fully, the colonists will be treated as *métayers* for a period of five years, the produce being shared with the Institute of Colonization. They will become owners of their land when the conditions of repayment provided for by the above mentioned decree have been fulfilled.

Reorganization of farm credit.

Farm credit was reorganized by the Decree of May 13, 1937⁽¹⁾, which distinguishes between credit for actual farming and credit for improvement. The first covers the ordinary management of farms which are already wholly or partly productive, and

⁽¹⁾ *Gazzetta Ufficiale*, No. 209, September 8, 1937.

in particular the handling and processing of products, the purchase of cattle, machines and farm implements and advances on farm products.

The second class of transactions relates to the permanent improvement of the land. The ends in view are (1) new planting and crops; (2) construction of farm roads; (3) preparation and improvement of land; (4) sinking of wells and establishment of watering-places and fencing; (5) construction and adaptation of rural buildings for farmers, housing livestock and equipment and storing and working up agricultural products; (6) construction of works for drinking and irrigation water and for draining and maintaining the lands; (7) application of electricity to agriculture, adaptation of mountain lands and reafforestation.

Loans for purchasing land to set up and improve small rural holdings are considered as farm credit operations.

The Decree of April 3, 1937 should also be mentioned, which permitted parcels of state land of from 4 to 15 hectares to be granted to native farmers in concession for improvement, the land being ultimately granted freehold. The native concessionnaires may receive subsidies from the colonial Government up to 40 per cent. of the cost of improvements on the lands granted.

Native owners of lands improved in accordance with the instructions given to native concessionnaires of domain lands may also receive these subsidies.

A Decree of August 12, 1937 ⁽¹⁾ authorized the Savings Bank of Libya to increase its resources by issuing special bonds up to 400 million lire, thus ensuring it the funds required to carry out this plan of agricultural colonization.

PORTUGAL

During the first ten months of 1938, the economic situation was much the same as for the corresponding period of 1937. In 1937 certain harvests, and especially the vintage, had been very abundant, while others, wheat, maize, rice, olive oil, had been only medium or poor. In consequence the position of agriculturalists was unsatisfactory: crop surpluses lowered prices to a level at which the grower made very little profit. On the other hand there was some rise in prices due to the small crops as indicated above, but the gross return was not enough to meet the costs of production and in particular the interest on debts. Taking it all round, the effects on the general national economy were unfavourable; thus the trade balance was weighted by the increase in imports and there was an exodus of foreign currency. In 1938 there was an abundant vintage, and the cereal harvests were more satisfactory.

The foreign trade figures for the first ten months of 1938 fall only a little below those of the corresponding period of 1937, which was a record year, and are higher than the figures of the three previous years:

Value of Foreign Trade for the First Ten Months of Years 1934-38:

In thousands of escudos.

	Imports	Exports
1934	1,556,322	674,306
1935	1,601,825	719,674
1936	1,521,858	802,541
1937	1,772,811	970,558
1938	1,630,128	907,857

⁽¹⁾ *Gazzetta Ufficiale*, No. 236, October 9, 1937.

Agricultural exports represent 60 per cent. of the total exports; vine products hold the first place, and forest products the second, as Portugal exports large quantities of cork.

This improvement in trade has meant a progressive improvement in the financial situation. There were budget surpluses of 180,000 contos in 1936, 211,000 in 1937 and 200,000 in 1938.

The price index numbers of crop products, of animal products and of the cost of living during the last three years were as follows:

	Price index of crop products	Price index of animal products	General index of cost of living
1914	100	100	100
1936	2,011	2,051	2,022
1937	2,067	2,168	2,102
1938	1,907	2,115	1,962

All the index numbers thus fell during the first ten months of 1938; the average wages of farm workers, which stood at 7.30 escudos for men and 4.10 escudos for women in 1934, fell in 1938 to 7 and 4 escudos respectively.

Wine.

There was large production of Portuguese wines, both of liqueur wines (Port and Madeira) and of ordinary red and white table wines: the vintage surpluses affected the interests of both vine-growers and of wine-dealers unfavourably. The measures previously taken by the Government to regulate the production, the consumption and the flourishing external trade in these products, were not adequate, owing to the very large production, for protecting the market; exports of wine decreased and prices fell. During the first ten months of 1937, exports amounted to 2,067,725 hectolitres representing a value of 208,195,000 escudos; for the corresponding period of 1938, the volume of exports was only 1,935,000 hectolitres for a value of 194,446,000 escudos. In reality there was no great difference between the two years, but in view of the very abundant vintage of 1938 the position of the vine-growers is not satisfactory, because together with some falling off in demand there is also an increase in unsaleable stocks; the result has been a price decline. To meet this situation the Government has regulated sales, laying down that these shall be in proportion to the wine obtained from the vintage in each case so that all growers may have a fair share of the market.

The main reason for the reduction in demand is to be found in the changes which have taken place on the European markets which consume Portuguese liqueur wines. In addition the ordinary table wines, formerly purchased by Brazil in large quantities, are no longer exported to that country; Brazilian buyers, who have to pay in gold, are not in a position to consign the required gold currency. Hence this type of wine has to be consumed in the country, and as the production is much in excess of the home requirements, there is a price decline.

In view of the importance of her great wine production for the general economy of Portugal, and since wine is the principal export commodity, the Government's policy is one of moderate limitation of production together with an endeavour to find new markets.

Cereals.

Wheat. — The wheat market which was never satisfactory was rendered worse by the short crop of 1938. It became necessary to import almost one-fifth of the quantity required for home consumption, which is about 5,000,000 quintals: during the first ten months of 1938 the imports were precisely 842,299 quintals for a value of 83,000,000 escudos. This large importation was necessitated by the exhaustion of the stocks formed in 1935 and 1936, following on the harvest of 1937 which was also deficitary.

The Government's wheat policy is to increase the area under cultivation, not by rendering such increase compulsory but by fixing a remunerative scale of prices sufficient to encourage the farmer to extend his wheat-growing. With the same object the Government is improving the organisation of credit and is encouraging the use of selected seeds. All the enactments for giving effect to this policy are contained in the Decree No. 28,906 of August 11, 1938 together with a scale of prices in force from that date.

According as the specific weight ranges from 73 to 81, prices vary between 139 and 152 escudos for soft wheat and between 134 and 147 escudos for hard wheat.

The levy of 12 centavos per quintal harvested has been lowered to 2 centavos. In addition a large credit was opened, under the terms of the Decree, at the National Bread Institute for the purpose of making long term loans to farmers to meet the expenses of wheat-growing.

Rice.

Portugal has always been an importer of rice; there has however been a decline in these imports in proportion to an extension of rice-growing. The measures taken by the Government, through the Regulating Commission for the Rice Trade which was set up in September 1934, were exceedingly effective. The annual average production of 230,000 quintals before the creation of this Commission rose to 570,000 quintals, average of the last four years. Actually the first measures taken by the Commission were designed to encourage growers to extend the area under cultivation, with the result that from an average of 10,000 hectares from 1931 to 1934, it rose to 20,000 in 1935 to 1938.

The beneficial results of the Government's measures are still more clearly evident from the import figures. The charge on the trade balance represented by the average import of 330,000 quintals of rice for the period 1931 to 1934 considerably declined as appears from the official import figures for 1937 and for the first ten months of 1938. In 1937 only 37,424 quintals were imported for a value of about 4,000,000 escudos, and for the first ten months of 1938, only 26,595 quintals for a value of 2,500,000 escudos.

This striking development is to be explained not only by the Government's measures, but also by the fact that higher profits accrue to Portuguese farmers from rice-growing than from the cultivation of other cereals; the very remunerative selling prices have continued to rise and the present market prices vary around 3 escudos per kilogramme for rice of first quality and 2.80 escudos for rice of second quality.

Olive oil.

Since the formation of the National Oil Council at the end of 1937, the oil market has been brought under a system of planned economy. This step was taken by the Government with the object of increasing production and controlling extraction and thus preventing the sale of olive oils not entirely pure.

With a view to checking the sale at low prices of the new oil by small growers who are compelled to sell to meet the costs of production, the Government has placed at the disposal of the Council the sums required for granting credits up to a maximum of 350 escudos for each 100 litres of oil. The loans are at 6 per cent. interest, and amortisable in six months.

In consequence of the exceptional olive harvest of 1937, *viz.*, 970,600 quintals, or almost double the average of the last five years (543,000 quintals), the prices in October 1938 were lower than those of the corresponding month of 1937. But the very short new crop, which according to calculations is only about 350,000 quintals, will undoubtedly result in a rise in prices.

NEW PERIODICALS RECEIVED BY THE LIBRARY OF THE INTERNATIONAL INSTITUTE OF AGRICULTURE for the first quarter of 1939 (*).

AGRICOLA; revue... du commerce agricole & horticole. Fédération nationale des unions professionnelles des négociants belges en fruits, légumes, pommes de terre et primeurs. Bruxelles, n° 1 (1938) — mens. 40 fr. int.; 15 b. étr. [Text and subtitle also in Flemish].

AGRICULTOR puertorriqueño. Asociación de agricultores de Puerto Rico. San Juan, v. 18 (1938) — mens. \$ 2 int.; \$ 3 étr..

AGRICULTURE; revue mensuelle technique et économique [publiée par les Ingénieurs agricoles]. Paris, v. 3 (1939) — mens. 40 fr. int.; 50 ou 60 fr. étr.

AUSTRALIAN forestry; the journal of the Institute of foresters of Australia. Perth, v. 1 (1938) — sem. 15s.

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BULETINUL demografic al României; publicație oficială a Institutului central de statistică din Ministerul internelor. București, v. 1 (1932) — mens. Lei 120. [Demographic bulletin of Rumania; official publication of the Central institute of statistics of the Ministry of the interior].

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* BULLETIN bimensuel d'études et d'informations économiques et financières. Service économique yougoslave. Belgrade, v. 2, n° 22 (1938) — 800 din. int.; 100 fr. suisses étr. [Mimeographed].

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(*) *List of abbreviations:* bihebd. (biweekly); bimens. (twice monthly); bimestr. (every two months); déc. (every ten days); étr. (foreign price); fasc. (copy); hebd. (weekly); int. (home price); irr. (irregular); mens. (monthly); n° (number); N. S. (new series); p. a. (per annum); q. (daily); sem. (half yearly); s. (series); v. (volume); trim. (quarterly).

N. B. — Between brackets [/] are given translations and explanatory notes not appearing in the title of the review.

- BULLETIN des marchés réglementés de Marseille; organe d'information de la Bourse de Marseille, v. 9 (1939) - hebd. 25 fr. int.; 35 ou 50 fr. étr. [Supplement: "Bulletin mensuel de renseignements et statistiques".]
- BULLETIN du syndicat des exportateurs français d'Indochine. Céréales, graines et produits divers... Paris, v. 1 (1938) - mens. 150 fr. int.; 200 fr. étr.
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MONTHLY BULLETIN

OF

AGRICULTURAL ECONOMICS AND SOCIOLOGY

WORLD AGRICULTURE IN RECOVERY AND RECESSION (1936-37 AND 1937-38)

Below we give a brief outline of the contents of The World Agricultural Situation in 1936-37 and 1937-38 just published by the Institute in English, French and German. In the present article the reader will naturally find only brief indications of the principal developments of the period under review, and for statistical and other details he is referred to the volume.

I. — Agricultural production and the supply of agricultural products.

The two years 1936-37 and 1937-38 have seen marked changes in the world agricultural production.

The year 1936-37 was the third in succession during which the world crops of the principal cereals were below the average. Stocks had to be drawn upon to make good the deficiency in current supplies. After the succession of good crops which lasted till 1933-34, and which had largely contributed to the agricultural depression of 1929-32, there began a succession of lean years. In 1933-1934, frosts and droughts reduced the principal cereal crops in the United States and in Canada and inflicted heavy damage upon stock and dairy farming in North America. But the losses there were compensated by good crops in other parts of the world. In 1934-35, the whole world was affected by the failure of the cereal crops; and the cotton crops were also poor in all the principal exporting countries—the United States, India and Egypt. Animal husbandry was also affected by the shortage of fodder. In 1935-36, weather conditions were again unfavourable to crops throughout the world. The cotton crops, however, were good, especially in Egypt. In 1936-37, weather conditions were again unfavourable to cereals, and most other food and fodder crops also suffered; especially in the so-called "importing" countries of Europe. The cotton crops, however, were again very good, and the production of cotton in new regions continued to expand.

The year 1937-38 marked a radical change in the situation as, in spite of adverse weather in some of the principal countries, it was a year of great plenty. This was partly due to the extension of the area sown, which, in some countries, was very considerable, and partly to high unit yield in those countries where weather conditions happened to be favorable. The world production of the principal cereals was abundant. As to cotton, both the area and the production of fibre in 1937-38 reached record figures.

As a result, while, during the preceding two or three years the stocks of the principal agricultural staples had been decreasing, in 1937-38 they began again to increase. This sudden change in the supply of agricultural products had a far-reaching effect upon agricultural prices and upon the world agricultural situation generally.

II. — General economic background of the agricultural situation.

The economic revival, which was so marked a feature of the world situation in 1935-36, has since pursued a somewhat chequered course. Increasingly stimulated by rearmament, it developed into a typical boom during the autumn and winter of 1936-37; but in the spring of 1937 a reaction set in. The recession began in the United States and then spread over the greater part of the world.

The upswing.

The autumn of 1936 was marked by an important monetary and economic event, the Tripartite Agreement of September 25, 1936 between France, Great Britain and the United States. The three Governments announced their intention to co-operate in the restoration of international economic relations, an essential condition of such co-operation being the devaluation of the French franc, with a view to bringing it into "alignment" with the currencies of the two other parties to the agreement.

Belgium was the first country to adhere to the agreement. Switzerland and the Netherlands followed immediately. Early in October Italy devalued the lira. Devaluations were also effected in Latvia and Czechoslovakia. The devaluation brought with it a tendency towards the mitigation of tariffs and trade restrictions, which was one of the objects of the Tripartite Agreement. This mitigation was made possible by the alignment of currencies, but it was largely dictated (in the devaluing countries) by the need to prevent an excessive rise in commodity prices and in the cost of living.

Though, in itself, devaluation could naturally exercise only a passing influence upon the economic situation, combined with other forces already in operation it gave a considerable impetus to economic expansion alike in the countries directly concerned and in the international field.

The deflationary pressure was largely eliminated, and a certain impulse was given to a rise in commodity prices, more particularly in those countries which had lagged behind in the general progress towards recovery. The reductions in tariffs and the removal or mitigation of trade restrictions gave some much needed encouragement to international trade, especially in raw materials and in foodstuffs.

All this contributed to the rise in commodity price and the rapid expansion in industrial and trading activities which distinguishes the last quarter of 1936. The rise in prices was not wholly due to the monetary change; there were other forces at work in the same sense. The world supply of the princi-

pal foodstuffs in 1936-37 was short of requirements, so that a rise in their prices was natural enough. Moreover, the crops having failed in some of the industrial countries of Europe, as well as in the United States, these countries had to increase their imports, thus contributing to the expansion of international trade in agricultural products. At the same time industrial expansion, largely due to accelerated rearmament, made increasing demands upon raw materials which had to be imported in larger quantities, thus tending to swell the turnover of international trade.

With the expansion of industrial activity and the rise in commodity prices, specially marked in the group of producers' goods, there was a strong inducement for the manufacturing industries and for speculators to build up reserves of raw materials against future contingencies. This, in its turn, tended to increase international trade in basic commodities and to raise their prices.

Through increased employment and higher wages, the aggregate purchasing capacity of the masses increased, and the inflationary tendencies inherent in the expansion came into operation.

Thus, in the course of the winter of 1936-37 the economic revival developed into a typical boom.

The industrial expansion, by increasing the demand for primary products, particularly benefited the agricultural and raw material producing countries. These increased their exports and obtained higher prices for their products, and the boom brought them large profits.

The recession.

In the spring of 1937 signs of a change in the situation began to appear. A regression set in, giving rise to widespread fears of a fresh depression.

The rapid rise in commodity prices, backed as it was by inflationary influences, began to cause uneasiness in the United States, where it was feared that its progress would compromise the Federal Government's programme of industrial recovery.

The raising of the legal reserve requirements of the banks and the "sterilisation" of incoming gold which, being kept under lock and key, was not permitted to affect circulation, were resorted to in order to stop the inflation. Moreover, further deflation was achieved by a substantial diminution of Federal Budget expenditure.

The accentuation of deflationary tendencies in the United States after the raising of the legal reserve ratio of the banks and the declaration of the Federal Government's decision to combat inflation brought about the liquidation of speculative holdings in the principal products, and thus started a reaction in the United States and elsewhere.

Agricultural conditions also contributed to the reaction in prices. In the spring, when the prospects of the 1937 crops began to take more definite shape, and bountiful harvests were forecast in most parts of the world, there was a natural reaction in the prices of cereals and of other agricultural products. The reaction was particularly heavy in cotton.

In the United States the reaction began in April. In July prices recovered slightly under the influence of an expected revival of business due to exceptionally good crops and to the improved financial position of the farmers.

This rise in wholesale prices, however, was very short-lived, and a fresh reaction began in August.

In September, the month during which the prospects of the year's business in the United States generally take shape, the slackening in the booking of orders began to attract attention, and measures were taken with a view to reviving industrial activity.

The Federal Reserve Board reversed its deflationary policy, inaugurating a series of interventions by the Federal Government which, throughout the autumn, winter and spring of 1937-38, sought to revive industry and trade by the pumping of money into circulation and the creation of work for industries and the unemployed. These measures, however, were exceedingly slow in taking effect. The recession continued, though at a somewhat reduced rate, into the summer of 1938.

Then, in June a spectacular improvement on the stock market took place and signs of a change in business conditions in the United States began to appear. Since the summer of 1938, industrial activity in the United States has recovered considerably, but the agricultural depression has continued.

Though the effects of the recession in the United States were probably most clearly marked in Great Britain, practically all countries felt the impact of the American business slump to a greater or lesser extent. Even those countries which are making every effort in order to achieve economic independence from the rest of the world, have not been able completely to escape these influences.

Like the recovery of 1934-37, the recession in the first half of 1938 was practically world-wide, differing as between one country and another only in intensity.

In the "new" countries, dependent upon exports of foodstuffs and raw materials the effects of the recession have been very pronounced. The reaction in commodity prices, due to the recession and to bountiful harvests in 1937-38, brought about a considerable deterioration in their economic and financial position.

The immediate effect of these changes naturally affected the liquidity of the credit position of the "new" countries, which was to some degree restored during the preceding period of revival, and encouraged a recrudescence of trade restrictions.

Influence of general economic conditions upon agriculture.

The nature of the revival in agriculture and the factors to which it was due have been discussed in some detail in *The World Agricultural Situation in 1935-36* ⁽¹⁾. Among the recovery factors we singled out natural conditions, Government intervention and industrial expansion as the most important.

⁽¹⁾ *The World Agricultural Situation in 1935-36. The Factors of Recovery in World Agriculture*, pp. 21 sq.

The influence of the general economic revival upon agriculture was clear and needs little elaboration. Any complications that there were arose out of the nature of the industrial expansion, largely based upon two artificial factors: rearmament and Government intervention in favour of agriculture, which increased the purchasing capacity of the agricultural population. These were inflationary factors, making the revival precarious and necessitating a close watch over the situation; more particularly over the changes in the price-costs ratios in agriculture, as well as in other branches of production.

At the time when our last survey was being written, in the spring of 1937, the recession had not yet started, and the immediate outlook was for the continuance of an inflationary boom. Since then, the recession has of course changed the situation, if not perhaps so radically as might appear at first sight.

In considering the actual and potential effects of the present recession upon agriculture, and in comparing them with those of the last great depression of 1929-32, we should always bear in mind the profound structural changes which have taken place in agriculture since then. The depression of 1929 found agriculture still on the whole organised on competitive lines, both nationally and internationally. In spite of certain measures of protection, moderate by present standards, international trade in agricultural products was still conducted on the basis of relative costs. Everywhere agriculture responded to outside influences much more readily than it does now, when in most countries it is subject to deliberate planning and control behind elaborate defensive barriers of tariffs, quantitative restrictions and exchange regulations.

During the brief period of revival, Government intervention has not been abandoned, and agriculture entered into the present recession protected and controlled as never before. Accordingly, the various effects of the recession in agriculture are less clearly pronounced and less uniform than was the case in former depressions.

The general economic situation affects agriculture mainly through its influence upon the effective demand for foodstuffs and, particularly, for raw materials of agricultural origin. Apart from changes in supply and from monetary factors, the prices of agricultural products are mostly determined by the demands of industry and of the mass of consumers whose incomes are derived from industry and trade.

The effects of the increase in supplies, owing to the exceptionally good crops of 1937, should first be taken into account. The fall in agricultural prices should be only partly attributed to the recession, and to the consequent decline in actual or anticipated demand. Indeed, the recession, except in the United States, had not yet brought about any marked diminution in employment or earnings. Accordingly, in this phase, the forces working for a reduction of effective demand had not yet come into operation, at least in so far as foodstuffs were concerned. It was rather a case of increased supply on a market where the demand was static, with prospects of diminution. With regard to raw materials of agricultural origin, and particularly cotton, the situation was different. A reaction in the cotton industry, resulting in a reduced demand for

fibre, had set in in the spring of 1937. The record American crop of 1937 thus came on a falling market. The situation was further aggravated, since the beginning of the conflict in China, by the contraction of Japanese production of cotton goods, and of imports of fibre.

While the reaction in foodstuffs was mainly due to increased supplies, agricultural raw materials were sharing the fate of most other raw materials. Apart from the influence of supplies, which in the case of cotton was exceedingly important, the reaction in raw material prices was caused by declining demand, which, in its turn, while mainly due to the enormous contraction of industrial activity in the United States since the beginning of the recession, was partly accounted for by the shifts in the industries, accompanying the concentration of industrial resources upon rearmament and involving the shrinkage of certain branches of production. Finally, the current demand for raw materials has to some extent been met, since the beginning of the recession, out of the stocks laid in during the boom, in anticipation of a continued rise in prices and of eventual inflation. During the past twelve months or so, the existence of these stocks tended to restrict buying.

III. — International economic relations.

Changes in international trade.

The economic revival which began in 1934 was very slow in making itself felt in international trade. It could hardly be otherwise in a world where economic self-sufficiency in essentials was becoming a watchword.

The political and economic situation of the world during the period under review favoured the progress of economic nationalism rather than a return to closer international co-operation. Far from improving, the international political situation deteriorated continually in 1936, 1937 and 1938. Military and political factors have tended increasingly to outweigh economic considerations.

A combination of special circumstances was thus needed to overcome the inertia of international exchange. The combination became operative in 1936-37.

Among the factors which stimulated international trade, the cumulative effects of the recovery in industrial production and earnings, which was by then in its third year, should be put first. The alignment of currencies in the autumn of 1936 and the subsequent relaxation of trade restrictions and exchange control, together with the effect upon commodity prices of the increase in gold supplies, all favoured an extension in international trade. The trade in agricultural products, in particular, increased owing to the failure of crops in North America and elsewhere. The United States, became an importer of cereals and greatly increased her imports of oils and fats while European imports of foodstuffs were larger than usual, as the crops were poor. Thus, by the time economic expansion reached the boom stage, in the late autumn and winter of 1936-37, international trade had also progressed considerably, making good much of the lag with which it had been following the expansion of industrial activity. In

1936-37 both the volume and the gold value of world's trade made great progress, reaching nearly the 1929 record.

As the recession spread over the world, international trade began to be increasingly affected. Old contracts, made during the boom, were running out, and the diminution of United States demand began to tell on the volume of trade, while its value was affected by falling prices. Outside the United States, the effect of large purchases of raw materials during the boom, in anticipation of rising prices, was that production was largely run on accumulated stocks. When these were exhausted, no restocking on a large scale took place, and purchases were made strictly within the limits of current needs, as is always the case on a falling market. The recession thus followed its natural course and its effects were cumulative. The process of contraction first became evident during the last quarter of 1937, continuing into the summer of 1938.

While the demand for raw materials, in spite of the exceedingly heavy consumption due to rearmament orders, has slackened considerably, the agricultural situation also helped to reduce international trade. Not only in the United States, but also in Europe, the 1937 crops were generally good, and the demand for imported foodstuffs diminished. Among the manufacturing industries, the textiles, and more particularly cotton, were less active, partly owing to the recession, partly as a result of the diversion of labour and means of production to the armament industries. In the United States, and to a lesser extent in the United Kingdom and Japan, there has been a decline in textile output, and the industrial consumption of cotton has fallen. Practically over the whole field of international trade, in spite of intensified rearmament, all the signs have been pointing to further contraction. Early in 1939, it would appear that this contraction has been checked, owing mainly to the revival in the United States.

Commercial policy during the revival and the recession.

Commercial policy during the period under review generally followed the course which had been traced in the preceding few years. International economic relations were being reorganised to fit them into the framework of a world economy split into a large number of national economies planned and controlled independently. This involved a far-reaching transformation of the structure and operation of international economic intercourse. Competition was largely being replaced by bilateral contractual relations. Commercial policy reflected the struggle proceeding between economic nationalism, culminating in autarchy as an ideal, and international economic co-operation, involving a growing dependence of all the countries upon each other. In this struggle, as we have pointed out before, nationalism has so far been the winner, and in the recent evolution of commercial policy this was clearly reflected, in spite of certain steps toward freer trade which have been taken during the last two years.

Among the steps in this direction, the further progress in the carrying-out of the United States trade reciprocity programme, the Tripartite Monetary Agreement and the Oslo Agreement should first be mentioned.

Apart from these deliberate attempts at mitigating restrictions upon international trade, there were numerous isolated cases of reduction or abolition of such restrictions by autonomous national action. In these unilateral actions some are inclined to see evidence that the tendency towards international co-operation is successfully asserting itself against nationalism. If, however, we examine more closely the nature and extent of such apparent concessions to economic liberalism, we cannot fail to see that, however important they may be, these relaxations have nothing to do with the promotion of international co-operation.

Under such conditions, any movement towards freer international trade, even if for a time it found some encouragement in the upswing of economic activity, could hardly survive a recession. Once again, with the dwindling of demand and the fall in commodity prices, there has been a return to conditions resembling those which, during the depression, led to an outbreak of extreme protectionism.

Certain relaxations made during the boom with the object of assuring an adequate supply of raw materials for the armament industries, in anticipation of a possible shortage and of rising prices, were now abandoned. As the political situation had been going from bad to worse, economic nationalism was in the ascendant. The only notable exception was the continued negotiation of reciprocity agreements by the United States. The Oslo Agreement, which lapsed in the summer of 1938, has not been renewed. The numerous bilateral trade and clearing agreements signed during these last two years, furthering trade between the contracting parties and to that extent adding to the turnover of international trade, are essentially instruments of the modern contractual organisation of international economic relations.

Clearing agreements, however, have of late been assuming less restrictive forms leading to a certain redistribution of international trade, if not actually to an increase in its volume and value. This tendency consists in the increasing adoption of what had come to be known as "payments agreements" in substitution for clearing agreements proper. Under this system, originally adopted in the Anglo-German Payments Agreement in 1934, and applicable as a rule to trade between a country with exchange control and a country with free exchange, the former is free to dispose of the balance of the sums accruing to its credit in the latter, on condition that a specified proportion of these sums is spent on purchases from the importing country. Thus a certain freedom is allowed to the countries with controlled exchanges as regards the choice of the markets in which to buy.

Being accompanied by a tendency on the part of countries with controlled exchanges, whose trade is often diverted by clearing agreements into unnatural channels, to increase their intercourse with free exchange countries, this development may have a certain importance. It involves the return, within a limited scope, to triangular trade, which in the course of the last few years has been by way of being ousted by bilateral trade relations. The possible effects of this development upon the general future of international trade should not, however, be exaggerated, as under present conditions, it is frequently due to special circumstances.

Since the summer of 1937 there have been numerous cases of increasing import duties.

Apart from tariffs and direct restrictions upon imports, exchange control has a great influence upon international trade. Here also, the alignment of currencies and the general improvement in the economic situation before the recession, had brought about some relaxations, and in 1936-37 international trade was somewhat less handicapped in this respect. The recession, so far, cannot be said to have caused any general recrudescence of exchange control, though some countries have been compelled by special circumstances to tighten up their exchange regulations. This was particularly true of Latin America, owing to the deterioration of its trade balance.

In conclusion it may be said that the evolution of commercial and exchange policies proceeded empirically, particular situations being met as they arose. On balance, as is to be expected during a recession in economic activity and prices, the trend has been towards restriction. However, some developments in the other direction which originated during the revival, such as the United States reciprocity policy and the substitution of payment agreements for clearings, have continued.

Structural changes in international trade.

In the course of the last few years the structure of international trade has changed profoundly.

On the one hand there has been a further extension of bilateral trade on a contractual basis at the expense of competitive international trade. Bilateralism, necessarily combined with a drastic restriction of free competition in international economic relations, is the outstanding characteristic of the new structural evolution of international trade.

The other aspect of the structural evolution of international trade during the period under review concerns the changes which have been taking place in the currents of trade between the different countries and continents.

As the most important and characteristic of these developments we should first mention the extension and consolidation of preferential economic relations between certain European industrial countries and their overseas empires; second, the constitution of certain regional economic blocs promoted by considerations of political and economic solidarity.

The two outstanding causes of the extension and consolidation of economic relations between European countries and their overseas empires are those of the British Commonwealth and of France and her possessions.

In the total of British trade the share of the Dominions increased continually at the expense of that of "other countries", and when in 1937 the turnover of the United Kingdom's trade at last showed a noticeable increase, the share of the Empire remained considerably above what it was in 1929.

The year 1937 was one of recovery for British trade, and the recession was not reflected in the turnover of the United Kingdom's foreign trade until the beginning of 1938. The decline in 1938, especially in exports, has been consi-

derable. It is too early, however, to estimate the influence of the recession upon trade between the United Kingdom and the other countries of the Empire.

The share of French colonies and possessions in the total trade of France increased continually until 1937. In 1937, the share of the colonies in both French imports and exports diminished considerably. This was due partly to the increase in the trade with foreign countries, largely caused by rearmament needs, and partly to the effect of severe failures of crops upon the volume of exports from French North Africa.

The formation of regional blocs is one of the most important and characteristic developments of modern times, both economically and politically. The political geography of Europe was revolutionised by the Great War, and solutions have had to be sought for the many economic problems created by the redrawing of the political map. The position was particularly difficult in Central and Eastern Europe, where a vast network of new frontiers now cut across regions which in the past had for centuries been parts of the same economic body. Numerous schemes have been put forward and tried with a view to mitigating the situation, which in some cases proved practically unbearable. The economic depression, which was itself partly due to the dislocations produced by the War and the peace treaties in European economy, gave a powerful impetus to the movement towards regional economic agreements. The development in this direction was further stimulated by the rapid extension of national planning which was accompanied by an accentuation of the trend towards economic autarchy. The economic basis of the political and military power of the leading European countries had to be extended by regional understandings with neighbouring countries whose economic resources were complementary to their own. For the lasting success of such regional understandings it was essential that, apart from all considerations of political solidarity, the countries concerned should be able to supplement each other's deficiencies. The developments of these last few years have amply demonstrated the truth of this statement, and it is along these lines that the reorganisation of economic relations in Europe is now mainly proceeding.

Regional economic understandings have been embodied in formal agreements, bilateral or multilateral; or have been more or less implicit in schemes of political alliance or co-operation. To the latter type, based on political solidarity, belonged the economic co-operation since the depression between the members of the Little Entente—Czechoslovakia, Romania and Yugoslavia. This attempt at supplementing political with economic bonds failed, however, to solve the fundamental economic problem of the Little Entente—to dispose under favourable conditions of Romania's and Yugoslavia's large surplus of agricultural products. Economically, they could not help eventually being drawn into the orbits of other countries whose pull was stronger.

Somewhat similar was the case of the so-called Oslo group in Northern Europe, consisting of Sweden, Norway, Denmark, Finland, the Netherlands and the Belgo-Luxembourg Economic Union. All these countries have important political interests in common, and this inclines them to economic co-operation, which was attempted in the Oslo Agreement of 1937. The agreement was, on

the whole, unsuccessful and was allowed to lapse. Owing to the essential economic likeness of the signatories, their trade with each other is exceedingly limited and they are vitally dependent for both supplies and outlets upon their economic relations with countries outside the Agreement.

While some of the schemes of regional economic co-operation failed, because the countries concerned did not possess the requisite characteristics for such co-operation, a far-reaching process of economic reorientation has been going on in Central and South-Eastern Europe during the last few years. Two centres of economic gravitation have increasingly asserted themselves since the depression in this part of Europe, whose economy was profoundly dislocated by the territorial changes following the Great War. One of these two centres, whose power of attraction is particularly great and is supported by a long-standing tradition of commercial leadership in this region, is Germany. Her own economic requirements, as well as those of the agricultural and raw material exporting countries to the south-east of her, made the development of co-operation between them practically a necessity.

Under such conditions it was natural that the expansion and consolidation of Germany's economic relations in Central and South-Eastern Europe, should have begun as soon as that country, after 1925, recovered the control of her commercial policy. They were intensified after the depression, first by a system of bilateral trade agreements, and later by clearing arrangements.

The other centre of gravitation is Italy. Her influence has been spreading of late over the south-eastern countries of Europe, in the Balkans and the Near East. Although in consequence of Sanctions, trade relations with Italy suffered a setback in 1935 and 1936, particularly in the Balkans and the Levantine markets, in 1937 there was a certain recovery. Italy's position in the south, as a country with very considerable manufacturing industries in need both of raw materials and of markets, is much like that of Germany in the centre of Europe; the gravitational forces in operation in the two cases are essentially similar.

One of the most important developments in world trade during the last few years has been the change in its distribution between the different continents. This is due to numerous causes, the most important of which, in the long run, has been the course of economic development in different parts of the world. The aggravation of restrictions upon trade and of exchange control have also diverted international commerce into new channels.

The outstanding feature of the change in the inter-continental distribution of world trade since the depression has been the decline of the share of the two most industrially developed continents—Europe and North America—in the total turnover of commerce. Between 1929 and 1936 this decline was clearly marked. The accelerated rate of economic revival in 1936-37, culminating in the boom, had the effect of increasing the shares of both Europe and North America in world imports: a natural consequence of industrial expansion involving larger imports of primary products. This break in the downward trend of the share of these continents in world commerce, however, was entirely accounted for by the industrial boom, and it is not likely to bring about a reversal of trend.

It is very difficult, however, to draw any definite conclusions from any changes that may have taken place in the intercontinental distribution of trade during the period under review. Political conditions during the last two years have been so unsettled that trade currents were bound to be diverted from their normal channels. Thus, the present situation in the Far East obviously affects the trade of Asia, and by altering Asia's share in the total trade of the world unavoidably affects the shares of other continents as well. The effects of the protracted conflict in China are naturally cumulative, and in 1938 they were more pronounced than in the second half of 1937, immediately after the outbreak of hostilities.

In dealing with the intercontinental distribution of trade, we must therefore distinguish between the undercurrents of real change due to economic causes of a permanent character, and surface waves which—although sometimes violent—do not reach deep enough to alter the main tendency.

World trade in agricultural products.

The depression of 1929-32 brought a great decrease in international trade in agricultural products. The world's net exports of wheat, for example, during the years 1933-34 to 1935-36 averaged barely two-thirds of the 1926-27 to 1930-31 average.

In 1936-37 *wheat* exports showed a marked increase, due to the influence of short crops in both the European importing countries and in the United States, this latter country, instead of exporting wheat, having been for three years running a large importer of that cereal. In 1937-38, with the United States having again a large exportable surplus, and the European crops being good, world wheat trade dropped again roughly to the low average of the three years preceding 1936-37. Among European importing countries, in 1936-37 and 1937-38, Germany occupied an outstanding position, her wheat imports having increased enormously as compared with the previous years.

The turnover of trade in *maize* increased considerably in 1937, the increase being due partly to larger production in Argentina, South Africa and Yugoslavia, partly to a great increase in the imports of the United States, where the crop was very poor, and an enormous increase of German imports. In 1938, Argentina's export surplus was under one-third of that of 1937, but the United States had a large surplus which, combined with those of Yugoslavia, Hungary and South Africa, partly made good the deficiency. Germany's imports continued to increase in 1938, thus helping to maintain the demand, but on the whole the world maize trade diminished compared with 1937.

Of other products, *agricultural raw materials* call for special mention. The cotton trade suffered from the recession in the United States and the conflict in the Far East, and the increased surplus of fibre came on a contracting market, with the result that, in 1936-37 and 1937-38, trade was slack and prices were depressed. The country which was most affected was India, whose cotton exports to Japan have greatly diminished since the beginning of the war in China. The United States share in the world's cotton exports increased considerably in 1937-

1938, mainly owing to the diminution of the exports of the two other principal exporters—India and Egypt.

Another product much affected by the industrial situation in the United States—especially by the revival and the subsequent recession—was *rubber*. To meet the growing demand in 1936-37, the International Rubber Committee, established in 1934 for the control of the world rubber market, raised the export quotas from 60 to 90 per cent. of the basic figures in 1937; but since the recession in the United States it had to make several successive reductions, and for the third quarter of 1938 the quotas were fixed at a low record of 45 per cent., in order to check the headlong decline in prices.

IV. — Agricultural prices and incomes.

Trend of agricultural prices.

In the table on the following page a comprehensive picture is given of the evolution of gold prices of the leading agricultural products during the more advanced phase of the recovery, the boom and the recession.

The effects upon agriculture of the revival and the subsequent recession are clearly seen from this table: in particular the change in the position of countries dependent upon their agricultural exports, in face of so rapid a reversal in the price situation. If the evolution in price relations since the recession is borne in mind, the seriousness of the situation becomes even clearer. Mainly owing to abundant production, the decline in agricultural prices since the recession was more pronounced than that in the prices of manufactured goods and of services, so that the terms of trade turned heavily against the agricultural exporter.

The country where the change was particularly marked, was the United States. The change from the situation in 1936-37, culminating in the boom, to that of 1937-38, after the recession and the complete reversal of the agricultural balance, was reflected in the passing of the Agricultural Adjustment Act of 1938, which has for its object the solution of the same problems of over-production and of the "farmer's dollar" as the original A. A. A. of 1933. These problems had for a time, owing largely to natural conditions, lost much of their urgency; now they again came to the fore.

Most Latin American countries were suddenly faced with a deterioration of their trade balances, and had recourse to stricter control of imports and exchange dealings.

For the agricultural exporting countries of Europe, the position was somewhat eased by the continuous development of their contractual trade relations, and some of them, in spite of the general recession, closed the agricultural year 1937-38 with a balance on the right side.

The operation of the various schemes of international regulation of the market of certain commodities, also reflected the change from revival to recession. This was the case particularly with rubber, the export quotas having

been halved during 1937-38, to meet the fall in United States demand. The international control of the wheat market had been in abeyance for over two years, but in 1937-38 a movement was set on foot for its revival. The International Sugar Agreement signed in London in May 1937, just at the beginning of the recession, was apparently effective in improving the conditions of the world sugar market in 1937, but in 1938 prices collapsed again, and by the close of the agricultural year 1937-38, export quotas were reduced considerably.

Prices of Agricultural Products.

(Gold francs per quintal.)

	1935 2nd half	1st half	1936 2nd half	1st half	1937 2nd half	1938 1st half
<i>Wheat:</i>						
London, Manitoba No 1.	11.34	11.00	14.05	17.06	18.28	16.93
Chicago, Hard Winter, No. 2	12.53	11.88	13.71	15.22	12.41	10.38
Buenos Aires, Barletta . .	8.31	10.33	11.40	12.81	14.35	11.35
Berlin, Home-grown . . .	24.76	25.86	25.11	25.68	25.07	25.62
Paris, Home-grown	17.06	19.34	23.68	21.15	19.23	17.81
Milan, Home-grown	26.61	28.57	24.85	20.15	22.22	22.49
<i>Rye:</i>						
Minneapolis, No. 2	5.79	6.45	10.61	13.11	9.22	7.85
Warsaw, home-grown . . .	7.26	7.99	9.73	14.31	13.99	12.50
<i>Barley:</i>						
Minneapolis, fodder No. 2.	5.53	5.04	10.97	10.81	7.76	7.64
Antwerp, Danubian	7.45	7.82	10.04	11.74	11.22	11.10
<i>Oats:</i>						
Chicago, White No. 2 . . .	6.92	6.56	9.67	11.13	7.38	6.79
Buenos Aires, White No. 2.	6.26	6.43	6.04	6.55	6.28	6.63
<i>Maize:</i>						
London, La Plata Yellow.	5.47	5.92	7.71	8.73	9.63	9.59
Chicago, Yellow No. 3 . . .	9.16	7.48	12.88	14.62	10.16	7.01
<i>Beef, Argentine chilled, London</i>	80.85	77.10	82.78	84.10	92.08	91.07
<i>Mutton, Argentine chilled, London</i>	54.89	63.05	60.74	60.91	62.50	61.48
<i>Bacon, Danish, London . .</i>	131.06	138.01	142.87	133.83	146.47	150.78
<i>Butter, Danish, London . .</i>	179.59	173.94	183.25	172.24	206.46	189.74
<i>Sugar:</i>						
96°, London	6.96	7.28	6.90	9.43	9.57	7.91
Raw 88°, Prague	6.80	7.13	5.73	7.73	8.21	7.04
<i>Cotton:</i>						
Middling, Liverpool	91.10	90.40	97.01	102.14	74.84	68.22
Broach, Liverpool	78.37	73.81	77.40	81.64	61.91	55.02
Sakellaridis, Liverpool . . .	122.24	128.56	149.91	151.69	122.04	112.62
<i>Rubber, plant, sheet, New York</i>	84.27	105.51	117.42	147.84	115.43	89.19
<i>Wool, fine crossbred, London .</i>	317.49	366.52	380.20	446.88	395.92	303.45

In the principal importing countries the measures of control were not generally abandoned during the revival, so that the recession did not involve, as a rule, any drastic revision of policy. The behaviour of wheat prices in Germany and, to a lesser extent, in France and in Italy deserves, however, special attention. Germany stands out as the country in which the economic system is most thoroughly controlled. The German market for agricultural products is virtually isolated, and the price system is as nearly autonomous as possible. The prices of certain basic farm products, including wheat, are fixed according to regions. The outstanding characteristic of the evolution of wheat prices in Germany—and wheat may be taken as typical in this respect—is their extraordinary stability throughout a period of wide variations on the world market. The changes that took place were slight, and often in a sense contrary to the changes in world prices.

In France wheat prices in 1935 were still much above the world level, though the margin had narrowed down. They rose at the end of 1935, and in 1936; but after the devaluation in September 1936, the trend of gold prices diverged sharply from that of nominal prices, and while the latter increased rapidly, the former declined, because the rise in internal prices failed to keep pace with the specific depreciation of the currency.

The movement of wheat prices in Italy was also influenced by the reorganisation of marketing through the *ammassi* which took place in the summer of 1936, and by the alignment of the lira in October of that year. While nominal prices have been rising slowly, but continually, since the autumn of 1935, gold prices dropped sharply at the end of 1936. Since then, owing to the strict control of the rate of exchange of the currency, they have varied within relatively narrow limits.

The examination of the movement of gold prices of the principal agricultural products also reveals the extent to which certain countries, by means of an active market and prices policy, have succeeded in making their price systems independent of outside influences.

The few deviations from the general trend in the exporting countries, of which the rise in the prices of oats in Argentina in 1938 is an example, are generally due to short crops or other local causes. In the case of some particular commodities, the market in which is subject to effective control, prices may also have deviated from the general trend; but these cases are exceptions which confirm the rule. The trend of agricultural prices on the world market was unmistakable.

The cases in which the course of gold prices diverged from that in national paper money were practically confined to the countries in which there has been a devaluation in 1936; and even in these—with the exception of France, where the franc continued to depreciate, after a sharp fall following the devaluation—gold and nominal prices generally moved on parallel lines. In some South-American countries there have been momentary deviations due to variations in the trade balance, but, as a rule, they have been more or less promptly corrected by tightening up the control over trade and exchanges. With the rates of exchange relatively stable since the sudden dislocations produced in

the autumn of 1936 by the sequence of devaluations, gold prices during the years 1936-37 and 1937-38 could be considered sufficiently representative of the general price trend of the world market to dispense us from the necessity of making a detailed examination of the movements of prices in national currencies, which would be bound to reproduce very much the same picture. Accordingly, we shall merely give a table of quarterly index numbers of wholesale prices of agricultural products in those countries for which such indices are available.

Quarterly General Index-numbers of Prices of Agricultural Products.

(First quarter of 1929 = 100.)

Countries	1936		1937				1938	
	3rd Quarter	4th Quarter	1st Quarter	2nd Quarter	3rd Quarter	4th Quarter	1st Quarter	2nd Quarter
Germany (wholesale prices)	79.5	77.8	77.8	78.3	79.5	78.7	79.1	79.5
England and Wales	87.5	89.6	92.4	95.8	95.1	94.4	93.5	91.7
Argentina	86.8	87.5	95.0	100.5	102.7	101.8	100.8	90.0
Belgium ⁽¹⁾	104.2	113.2	111.6	109.9	119.6	124.0	123.2	123.6
Canada	73.5	80.8	90.2	90.1	86.4	86.4	87.2	81.1
United States: Bureau of Agricultural Economics	82.9	83.6	88.4	87.0	83.6	74.0	67.3	63.5
United States: Bureau of Labor	78.2	80.9	87.0	85.0	82.2	71.9	66.5	64.3
Finland	73.5	75.7	82.2	81.3	82.2	84.7	86.6	84.1
Hungary	52.9	56.6	59.6	58.8	60.3	61.0	61.0	67.0
Ireland	65.0	69.3	67.4	75.3	75.9	77.1	75.7	79.1
Lithuania	38.9	43.0	46.6	47.3	47.3	46.3	46.6	46.0
New Zealand ⁽²⁾	129.4	131.9	137.2	143.9	145.1	150.9	136.5	136.9
Netherlands	57.9	57.9	62.1	66.4	70.7	68.6	68.6	71.8
Poland ⁽³⁾	47.7	51.5	54.1	57.8	58.9	56.7	55.8	55.3
Sweden ⁽²⁾	117.7	118.3	121.4	120.2	122.1	125.8	127.8	124.3
Yugoslavia:								
vegetable production	44.6	48.5	49.6	50.2	55.3	62.8	63.4	65.3
animal production	58.9	60.9	59.4	59.4	62.1	62.9	62.2	61.0

⁽¹⁾ Base: 1st quarter of 1932 = 100. ⁽²⁾ Base: 1st quarter of 1931 = 100. ⁽³⁾ First month of each quarter compared with January 1929.

The decline, according to these indices, is most pronounced in the United States, Argentina and Canada.

In Europe, price trends were less uniform. In Germany there was stability. In England, the maximum was reached during the second quarter of 1937, since when there has been a steady decline.

In the Netherlands, where a far-reaching system of regulation and control of agricultural markets, put in operation during the depression, has not been abandoned, the index numbers rose continually till the third quarter of

1937. There was then a reaction in the next six months, but in the second quarter of 1938 a recovery took place. In Sweden, prices improved almost continuously till the second quarter of 1938, when there was a slight setback, probably due to the recession, which had been late in making itself felt in the Scandinavian countries, but which, in 1938, reached them also. In the agricultural countries of Eastern and South-Eastern Europe, where economic conditions during the period under review were determined more by regional factors than by developments on the world market, the price trends were somewhat peculiar. In Hungary, there was a slight reaction in the second quarter of 1937, but there has since been a continuous recovery. In Poland the reaction which began at the end of 1937, has been relatively slight. In Yugoslavia recovery has been practically continuous, and was particularly marked in vegetable products. In all these countries prices had fallen to exceedingly low levels during the depression, and the development, in the course of the last few years, of their exchanges on the basis of bilateral trade and clearing agreements with their industrial neighbours more than compensated them for the effects of the general recession.

Two countries do not appear in our table, though the movements of agricultural prices in both present considerable interest. In France, agricultural prices advanced rapidly until September 1937. Between September 1937 and March 1938 the movement came practically to a standstill. During the second quarter of 1938, there was a decline in animal products, coupled with a considerable rise in vegetable products. In Italy the steady rise in agricultural prices, largely owing to active Government support, has been practically continuous since 1934.

Agricultural prices and costs.

During a period of rapid changes in prices, considerable ruptures in the balance of prices of different commodities are unavoidable. Agriculture is more liable than most other branches of production to suffer from such upheavals, being more difficult to organize. Hence, during the great depression of 1929-1932, governments had to intervene in favour of the farmers, either doing for them, or making them do, under some compulsory scheme of control, what most industries did through voluntary combination for the regulation of production and prices. This intervention, to which agriculture was largely indebted for its recovery, has not generally been abandoned during the period of rising prices, and since the recession the measures of regulation and control have often been intensified. Accordingly, when the fresh reaction in prices began, the farmers in most countries were better able to cope with the situation than in 1929, when the depression took them utterly unprepared and played havoc with their markets and their incomes. This difference in the farmer's position, which involves to a certain extent the recognition of the special position of agriculture as a public service, is exceedingly important, and has always to be borne in mind in considering present-day agricultural problems. In most countries, agricultural prices are not what they were in 1929. Then they were merely what the farmer could obtain in competition on the open market, now they are often conceived of as his just remuneration for performing a function of special social utility, the

continued performance of which must be assured, if necessary at a certain expense to the community as a whole. Whatever the differences in form, such is the substance of the agricultural price policies of the New Deal in the United States, with its "parity prices" and its "farmer's dollar"; of National-Socialist Germany with her fixed "fair" prices of agricultural products; of the Wheat Act

FIG. 1. — Movement of prices of agricultural products and of articles bought by the farmers and of agricultural wages in the United States (1909-10 to 1913-14 = 100).

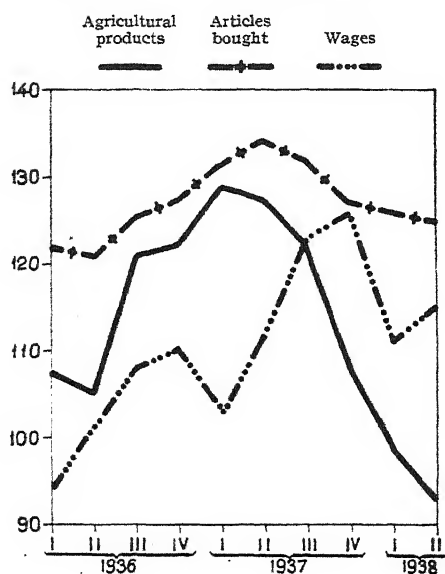
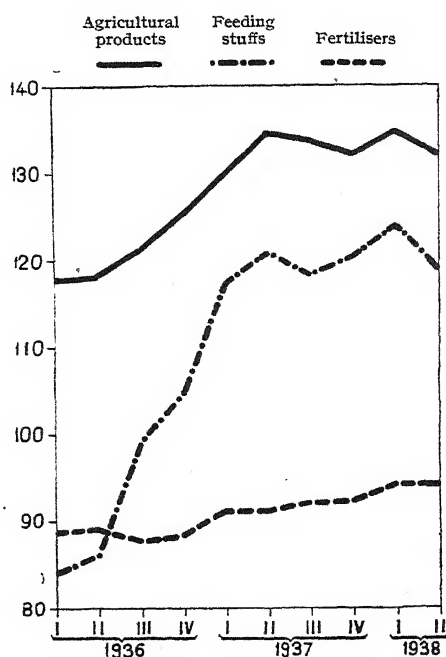


FIG. 2. — Movement of prices of agricultural products, of feeding stuffs and of chemical fertilisers in England and Wales (1911-1913 = 100).



and the marketing schemes in Great Britain; of the *Office National du Blé* in France, etc. Under all these different schemes, agriculture is to a larger or smaller extent withdrawn from the competitive struggle of the market and placed in a sheltered position, under the care and tutelage of the State.

Under such conditions the prices of agricultural products, except in countries depending entirely on exports and therefore unable to support them by national measures for any considerable time without incurring enormous losses, are bound to display far greater stability than they did under competitive conditions, such as existed in 1929.

Government intervention was not limited to control of the prices of agricultural products, but often involved measures aimed at the reduction of costs of

production as well. This was specially important in countries which, being dependent on the world market for the disposal of their products, could exercise no effective control over prices, and thus had to intervene at the other end. In some so-called importing countries this was a necessary adjunct to the price policy, in so far as, in the interest of the economic system as a whole, agricultural prices could not be raised.

Moreover, since our last survey was written, important changes have taken place in the general economic situation.

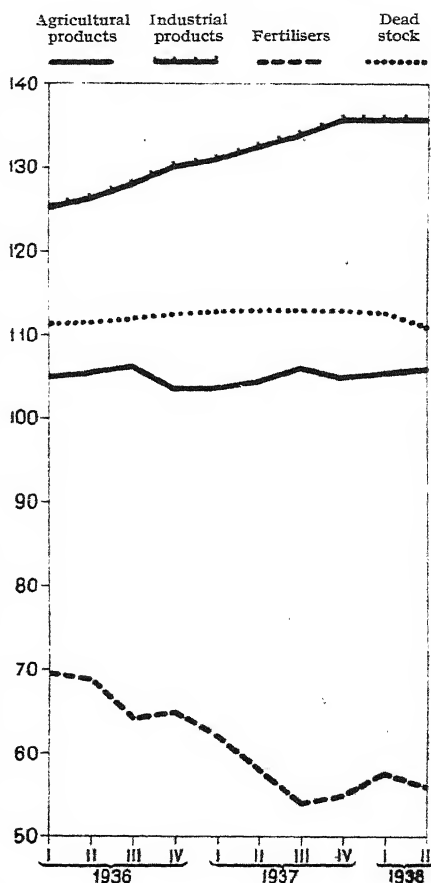
The recession, though it involved a decline in agricultural prices, greatly eased the situation with regard to costs of production. With the falling-off of United States demand for primary products, the strain to which rearmament subjected the raw material markets was considerably relieved, and the threatened dearth of the means of production necessary to the farmer had on the whole not materialised. The pitch to which the tension in the economic system rose in the spring of 1937 has not been maintained, and in spite of the depression of prices the agricultural situation became far less dangerous, than it then appeared.

Passing now to the examination of changes in the relation of agricultural and industrial prices it is necessary to point to the unavoidably crude approximation with which our data reproduce the actual situation. Failing anything better, they do however give an idea of the direction of changes in some at least of the principal items of the farmer's costs, compared with his returns.

In the table on the next page we show the movement of index-numbers from the beginning of the recovery to 1937. From these annual figures we shall pass to a brief survey of quarterly indices.

With the single exception of Germany in which both the prices of agricultural products and those of the principal commodities bought by the farmer displayed great stability throughout the later stages of the revival and the reces-

FIG. 3. — Movement of prices of agricultural products, of industrial products, of chemical fertilisers and of agricultural dead stock in Germany (1913 = 100).



*Index-numbers of Prices of Agricultural Products and of Commodities
and Services Bought by the Farmers.*

	1932	1933	1934	1935	1936	1937
Canada (Dominion Bureau of Statistics, 1926 = 100):						
Total, Canadian farm products . . .	48.4	51.0	59.0	63.5	69.4	87.0
Fertilisers	72.3	73.8	75.9	75.8	74.5	74.5
Consumers goods	77.8	76.0	77.0	75.7	75.5	78.3
Wholesale products, general	66.7	67.2	71.6	72.1	74.6	84.5
England and Wales (Ministry of Agriculture, 1911-13 = 100):						
Agricultural products	112.0	107.0	114.0	117.0	122.0	133.0
Feeding stuffs	95.0	85.0	91.0	87.0	93.0	120.0
Fertilisers	90.0	90.0	90.0	88.0	89.0	92.0
General wholesale prices	94.0	93.7	96.4	99.5	104.4	120.6
Germany (Statistisches Reichsamts, 1913 = 100):						
Total, agricultural products	91.3	86.8	95.9	102.2	104.9	104.6
Chemical fertilisers	70.4	70.2	68.7	66.8	66.8	57.0
Machinery and implements	116.1	111.6	111.1	111.1	111.6	112.7
Manufactured goods	117.5	117.7	117.3	124.0	127.3	133.2
Poland (Central Statistics Bureau 1928 = 100):						
Agricultural products	58.9	52.4	46.8	43.8	45.4	53.6
Commodities bought	81.4	72.9	70.6	66.3	64.6	66.2
General wholesale prices	65.5	59.1	55.8	53.0	54.0	59.4
United States Bureau of Agricultural Economics, (1909-10 to 1913-14 = 100):						
Total, agricultural products	65.0	70.0	90.0	108.0	114.0	121.0
Commodities bought	107.0	109.0	123.0	125.0	124.0	130.0
Agricultural wages	86.0	80.0	90.0	98.0	107.0	120.0
Yugoslavia (State Bank, 1926 = 100):						
Vegetable products	67.5	57.2	57.4	68.2	69.7	74.1
Animal products	56.6	57.1	55.4	56.6	60.0	65.1
Industrial products	66.2	70.8	67.4	66.7	69.7	77.6
General wholesale prices	65.2	64.4	63.2	65.9	68.4	74.7
Belgium (Boerenbond Belge, 1909-1914 = 100):						
Total, agricultural products	524	487	467	502	555	604
Total, production expenses	776	679	649	630	689	736
Chile (Bureau of Statistics):						
Total, agricultural products	197.8	259.8	249.4	284.3	336.3	430.0
National industrial products	245.6	328.8	330.4	349.5	401.8	489.4
Sweden (Kungl. Lantbruksstyrelse, 1909-1913 = 100):						
Total, agricultural products	91	92	107	117	123	129
Total, commodities purchased	119	115	121	129	133	145
Agricultural wages	176	170	168	170	174	193
Norway (Landbrukskole, 1909-1914 = 100) ⁽¹⁾ :						
Total, agricultural products	123	114	112	119	134	140
Total, commodities purchased	134	138	133	136	143	151
Agricultural wages	161	152	146	146	152	162
Finland (Bureau of Statistics, 1928-29 = 100) ⁽¹⁾ :						
Total, agricultural products	82.6	81.2	80.7	84.0	89.4	93.1
Total, commodities purchased	79.2	84.7	81.4	87.4	89.2	99.2

⁽¹⁾ In Norway and Finland for the agricultural year beginning on April 1st.

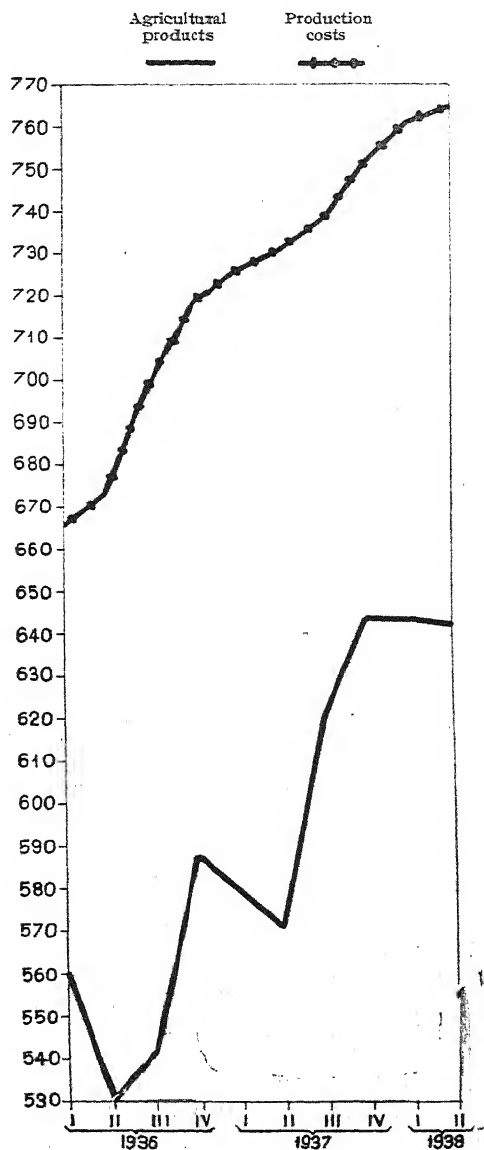
sion, in 1936 and, still more, in 1937 the prices of agricultural products registered a marked rise. Dealing here with general index numbers, in which the individual variations are hidden, one is liable to underestimate the extent of the disequilibria which, particularly during the later stages of the revival, began to develop within the price system. These ruptures of balance between the prices of individual commodities are only occasionally reflected in our table.

It is only in 1937, a year which saw the boom reach its climax and the recession begin, followed by the large increase in the supply of agricultural products owing to plentiful crops, that—in spite of the rise in the index-numbers of agricultural prices—signs of the balance becoming upset began to appear. This reflects the fact that the advance in the annual index of agricultural prices is often entirely accounted for by the months preceding the boom, after which there has been a more or less pronounced reaction; a reaction more marked in farm products than in any of the commodities or the services farmers buy.

We see that, in the *United States*, the rise in the agricultural price index in 1937, though marked, is almost overtaken by that in commodities bought, which used to lag considerably behind it since 1934, and that agricultural wages have advanced by nearly twice as much as farm products. Indeed, if we consider the trend of the three series, as plotted in the diagram No. 1, we see how, since the recession, price relations turned against the farmer.

In *England*, where animal husbandry is the most important branch of farming, and where fodder costs therefore play a decisive part in the farmer's balance of profit and loss, the characteristic development of the period under review

FIG. 4. — Movement of prices of agricultural products and of costs of production in Belgium (1909-1914 = 100).



was the rise in the prices of feeding stuffs, which is shown in diagram No. 2 in relation to the movement of prices of agricultural products.

FIG. 5. — Movement of prices of agricultural products and of articles bought by the farmers in Sweden (1909-1913 = 100).

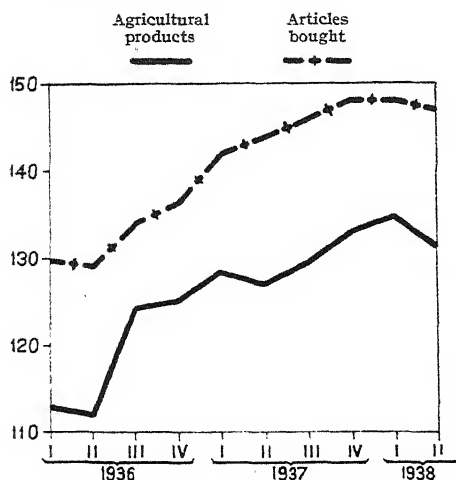


diagram No. 4, and at a greater pace than did prices, so that the farmer's position would appear to have somewhat deteriorated.

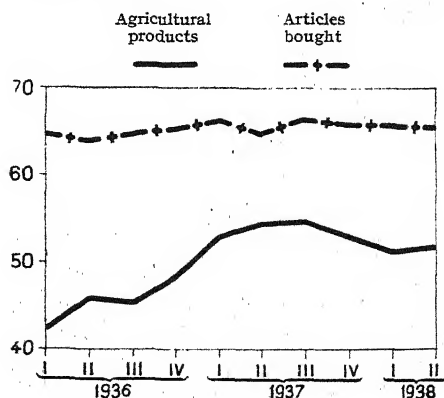
In *Sweden* the price situation has on the whole been distinctly favourable to the farmer. Indeed, even during the depression, Sweden was never affected as much as most other countries. During the period under review agricultural prices rose almost uninterruptedly until the first quarter of 1938, and only in the second quarter of that year was there a reaction. The prices of commodities bought by farmers also rose, but to a somewhat lesser extent, and they also reacted in the second quarter of 1938, but less than did agricultural prices.

In *Poland* the trend of agricultural prices was upwards till the third quarter of 1937. Since then there has been a slight decline. The index of prices

The position in *Germany* during the period under review shows a combination of great stability in the prices of agricultural products with a progressive rise in the general index of prices of finished industrial products. The position of the farmers, in face of this depreciation of their products relatively to manufactured goods, was however considerably mitigated by the effective control of the prices of the principal means of agricultural production—fertilisers and implements—the cost of which actually fell.

In *Belgium* the general trend of agricultural prices has been upwards, though seasonal and other fluctuations were sometimes rather pronounced. In the first half of 1938 there was a slight reaction. The index of costs of production rose continually throughout the 30 months covered by

FIG. 6. — Movement of prices of agricultural products and of articles bought by the farmers in Poland (1928 = 100).



of commodities bought by the farmers displayed remarkable stability, so that, on the whole, the farmers' purchasing capacity ought to have increased. Indeed, in Poland the Government was not called upon during the period under review to take any special measures for the control of agricultural markets and prices, and its activity was focussed upon schemes of permanent improvement in agriculture. It should also be noted that Poland is among the few countries which have stuck to gold parity, and that the working of this deflationary factor upon its price system has been to smooth down any tendency towards a rise in commodity prices.

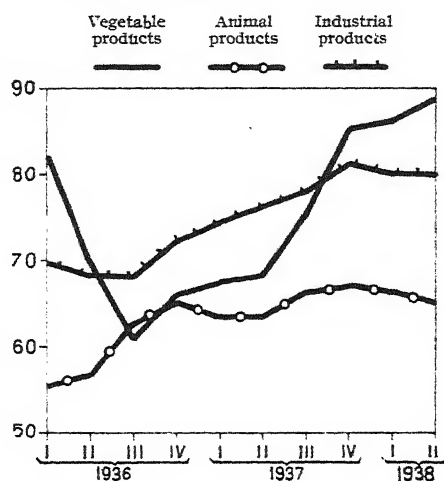
In *Yugoslavia* there has been a rising price trend since the second half of 1936. This rise is very pronounced in vegetable products, but in animal products much less marked and rather unsteady. The prices of industrial products rose considerably, though much less than those of vegetable products, but in 1938 there has been a slight reaction. The situation during the period under review developed on the whole favourably for Yugoslav agriculture.

Returns of agriculture.

As we have seen, during the two years covered by the present survey both the volume of agricultural production and the prices of agricultural products underwent drastic changes. In the present section we shall make an attempt, on the basis of the few and fragmentary data available, to estimate the effects of these changes upon the economic position of agriculture.

In the *United States*, the cash farm income of farmers has increased continually since 1933. Up to 1936, this increase was mostly due to a rise in prices due to the joint effects of the New Deal and of short crops. In 1937, in spite of the reaction in prices, the increase in the volume of sales due to abundant crops and a slight increase in Government payments under the Soil Conservation Act brought about a considerable rise in farm income. According to the preliminary estimate for 1938, it would appear that the continued reaction in prices, aggravated by the repetition of bountiful crops, reduced the farmers' income considerably, despite a fresh increase in the volume of sales. The total cash income of farmers in the United States, including Government payments, in millions of dollars, was: 5,117 in 1933; 6,378 in 1934; 7,090 in 1935; 7,944 in 1936 and 8,600 in 1937. In 1938 it is provisionally estimated at 7,500 million dollars.

FIG. 7. — Movement of prices of agricultural products and of industrial products in Yugoslavia (1925 = 100).



In *Germany*, the income of agriculture has increased continually since 1932-1933, when it was at its lowest with 6.4 milliards RM. In 1936-37 it was 8.9 milliards, and in 1937-38 reached 9.5 milliards, the increase being due almost entirely to an expansion of production and sales.

For some countries we possess estimates of the net value of total agricultural production. In *Canada*, the net value of agricultural production, which reached 1,020 million Canadian dollars in 1920, and fell to a minimum of 493 million dollars in 1932, had since been rising continually, until in 1936 it reached 690 million dollars. In 1937 however it dropped to 682 million dollars, as a result of the great drought of that year. In *Switzerland*, the net value of agricultural production which, in 1936, had fallen to 1,146 million Swiss francs, increased to 1,247 million francs in 1937.

For *Sweden* we possess figures for the gross value of agricultural production. After a period of depression from 1930 to 1933, the gross value of agricultural production has very nearly returned to the figure of 1929, the variations from year to year in 1934, 1935 and 1936 being slight. In 1936, the figure was 1,029 million Swedish crowns and in 1937 it rose to 1,183 millions: a figure considerably in excess of 1929 (1,059 millions).

The above rather scanty data have the great drawback of telling us nothing about the actual economic position of the farmer, since, while they show how much he obtains for his products, they are completely silent about his costs. From that point of view, the most interesting source of information consists in the results of *farm accountancy*, provided they are statistically representative and sufficiently recent. For the purpose of our present study, however, which is to show the changes in the economic position of agriculture in various countries owing to the recession, practically nothing has been published as yet. Indeed, for the crucial year 1937-38, the results of farm accountancy are available at the moment of writing for *Denmark* only. The data published by the Danish Bureau of Farm Management show that the net returns of controlled farms, which were 78 crowns per hectare in 1934-35 and 93 crowns in 1935-36, fell to 52 crowns in 1936-37 and rose again to 91 crowns in 1937-38. Farm expenses increased from 564 crowns per hectare in 1936-37 to 594 crowns per hectare in 1937-38, the rise being chiefly due to higher cost of labour and of feeding stuffs. The gross returns increased from 616 crowns in 1936-37 to 685 crowns per hectare in 1937-38. The only other data available for 1937-38 are for the Overijssel district in the *Netherlands*, also rather a peculiar case. There, the net returns of controlled farms increased from 27.98 florins per hectare in 1936-37 to 42.78 florins in 1937-38.

For other countries our information reaches only to 1936-37, covering only the recovery phase. It generally reflects the improvement which had been taking place practically everywhere before the sudden reaction in 1937. Thus, we see that, in *Switzerland*, the net returns of all farms, as estimated by the Secretariat of the Swiss Peasants' Union at Brugg on the basis of farm accountancy data, has increased continually since 1933-34, passing from 214 to 256 Swiss francs per hectare between 1935-36 and 1936-37. In this case, unlike most other cases the increase in net returns, was entirely accounted for by a diminution

of farm expenses. In *France*, the increase in the net return of controlled farms in the Soisson district was from 284.67 francs in 1935-36 to 565.47 francs in 1936-1937, and in Etrepagny from 242.69 to 429.23 francs per hectare; but here the depreciation of the franc should be taken into account. In *Estonia* we have an increase in net returns from 11.03 Estonian crowns per hectare in 1936-37 to 15.80 crowns in 1936-37; in *Poland* from 52.82 to 63.14 zloty per hectare. In *Sweden*, the net returns of controlled farms of the Central region increased from 51 Swedish crowns in 1935-36 to 52 crowns per hectare in 1936-37. In Southern Sweden the increase in net returns was from 124 to 131 crowns per hectare. In both regions farm expenses increased. In *Norway*, the increase in net returns of peasant farms was from 101.9 Norwegian crowns in 1935-36 to 115.2 crowns per hectare in 1936-37.

V. — Agricultural policies in the different countries.

The last chapter of our volume deals with the agricultural policies followed in the different countries during the period under review. It would obviously be impossible to give here even a brief outline of the main trends of the evolution of the national policies, which are peculiar to each country, but some of the outstanding characteristics of the policies followed may be mentioned here.

One feature of the trend of agricultural policy during the two years dealt with in our survey, to which we have already had occasion to point, and which played a very important part in the situation, was that the far-reaching measures of government intervention, to which agriculture has been subject practically everywhere since the depression of 1929-32, have generally survived during the recovery, with but very few relaxations. It could hardly have been otherwise, seeing that the revival in agriculture has been due to a very large extent to these measures of government intervention, and that, once put into operation, they penetrated so deep into the whole structure of agricultural production and trade that they could not easily be withdrawn without throwing the whole agricultural sector of the economic system into utter confusion. Accordingly, when the recession came, it did not generally necessitate the adoption of new measures of intervention or the creation of new machinery of control; and though national policies naturally differ according to the special conditions of the countries concerned, as well as to the leading principles of the general economic policy followed by their respective governments, this applies indifferently to them all.

The recession, indeed, during the period under review, has not produced anything essentially new in agricultural policy.

The only exception to this is provided by the United States in the *Agricultural Adjustment Act of 1938*, but even here it is more apparent than real. Indeed, the new Act put into effect an agricultural policy of a more permanent nature than that inaugurated in 1933; a policy which has been envisaged ever since the beginning of the New Deal. The recession may have accelerated the passage of this enactment by once again forcibly focusing attention upon the

precariousness of the position of the farmers, but all the main points of the scheme embodied in the Act have been under consideration for a considerable time past.

Another feature of the reaction of national agricultural policies to the recession was that such reaction, hardly noticeable anywhere, was least of all marked in those countries which have deliberately adopted the system of comprehensive economic planning and control. In these countries, of which Germany and Italy are the two outstanding examples, the control of production and trade makes the home market to a large extent independent of the changes which take place in the rest of the world. As we had occasion to see, this independence was clearly evident in the evolution of prices of agricultural products in these countries throughout the recovery and the subsequent recession. Isolated, as far as possible, from outside, these countries did not feel the impact of the recession to anything like the extent to which it was felt in other countries, more open to the influences from the world market, and their policy, accordingly, remained unchanged and followed its appointed course.

The countries in which the recession was most painfully felt were the overseas agricultural exporting countries. Their exports depreciated heavily, and there was very little they could do by their own national efforts to meet the situation. Practically the only way open to them was the tightening-up of restrictions upon imports and of exchange control, by which they could at least try to prevent an unfavourable turn in their balance of trade and of payments. This, indeed, was the means widely applied by the countries of Latin America—Argentina, Brazil and some other of the South-American Republics.

In some cases, the agricultural exporting countries sought to remedy the situation by having recourse to international action. Thus, in 1938, there began a movement in favour of the revival of the International Wheat Agreement, which had been in abeyance since the beginning of the recovery, and in January 1939 a conference met in London with this object in view. The export quotas fixed by the existing international bodies for sugar and rubber, which have been raised during the boom, were again heavily reduced in 1938. But these international actions covered a very limited field, and as autonomous national action was also seldom effective, the situation of these countries was difficult.

The agricultural exporting countries of Europe, during the period under review have not, on the whole, suffered from the recession to any considerable extent. As a result, whatever changes there may have been in their agricultural policies were mostly accounted for by considerations of permanent improvement in the organisation of agriculture, as distinguished from emergency measures. The fact that they were so little affected by the recession, while the depression of 1929-32 had all but ruined them completely, was mostly due to the enormous development, in the course of the last few years, of bilateral trade agreements which ensured to the agricultural countries of Eastern and South-Eastern Europe profitable markets for their exportable surpluses. In some cases, these agreements actually involved a more or less far-reaching re-orientation of agricultural

production in the countries concerned. During the period under review the development of bilateral agreements in Eastern and South-Eastern Europe played an exceedingly important part and was, probably, the outstanding feature of the whole evolution of agricultural policy in this vast region.

Of the other countries there is little to say, since, as we have pointed out, on the whole they continued to follow their different policies, generally marked by far-reaching government intervention, along the lines described in considerable detail in the preceding volumes of our survey. France, however, should be mentioned here, as her agricultural position and policy has been profoundly affected by the continuous depreciation of the franc. The movement of prices due to monetary conditions could not fail to exercise an influence upon the activity of the *Office National du Blé* which had to adopt its policy to changing conditions. But, on the whole, the depreciation of the franc, and the consequent rise in commodity prices, benefited the farmer, and consequently facilitated the task of the Government in assisting agriculture.

G. P.

TRADE RELATIONS OF THE U. S. S. R. WITH WORLD AGRICULTURAL MARKETS

SUMMARY :— General features of the foreign trade of the U. S. S. R. — Trade treaties between the U. S. S. R. and other countries. — Volume and character of the foreign trade of the U. S. S. R. — Alteration in the composition of Russian foreign trade.

I. — General features of foreign trade of the U. S. S. R.

The State Monopoly of Foreign Trade.

The lines along which the Russian planned economy was to develop its economic relations with the outside world found expression as early as April 22, 1918 in the formation of the State Monopoly of Foreign Trade. In 1922 this organization was given its legal place as an integral part of the economic system, through the Civil Code. Clause Seventeen stated that "no person or juridical person in the territories of the R. S. F. S. R. ⁽¹⁾ shall take part in foreign trade except through the agency of the State as represented by the People's Commissariat for Foreign Trade. Independent dealings on the foreign market are permissible only in circumstances expressly defined by the law, and then only under the supervision of the People's Commissariat for Foreign Trade".

⁽¹⁾ Russian Socialist Federation of Soviet Republics. It may be mentioned here that the Union of Socialist Soviet Republics (U. S. S. R.) was organized on July 6, 1923 as a free union of Soviet Republics, of which there were originally four, the largest being the R. S. F. S. R.

In the years immediately after the war Russia's output fell off considerably, and industry could only be supplied with raw materials by requiring for raw material exports special permits, issued by a particular Government organization in each separate case. In addition, an adequate market for home products had to be guaranteed, and this consideration, in view of the great fall in purchasing power on the home market, made it necessary to restrict imports more or less completely. Thus both exports and imports required regulating. This was done through a plan drawn up by the State Planning Organization and rigorously applied by the State Trade Monopoly.

The rapid depreciation of the rouble had also to be checked. One of the essential requirements in solving this problem was the prevention of exports of specie, which meant that the balance of trade would have to be made favourable. This supplied a further reason for introducing and maintaining a monopoly of foreign trade.

This monopoly of foreign trade aims at checking unregulated trade with foreign countries and preventing the developing socialist economy from being submerged by goods from other countries. In the opinion of the Russian planners, tariffs alone were scarcely adequate to achieve this object, as even the very highest tariffs could be compensated by high bounties on goods exported to the U. S. S. R.

The guiding principle of the U. S. S. R.'s tariff policy is the protection of industry, and particularly heavy industry. Nevertheless, as a result of the monopoly system tariffs play a less decisive role in the U. S. S. R. than in other countries. The principal means of protecting industry internally are the prohibition of the purchase of certain articles and the refusal to grant licences. The same policy is adopted in regard to foreign trade: the import of goods produced in sufficient quantities within the country is not permitted. On the other hand, if the output of certain goods within the country is inadequate they may be imported despite the home output.

Under the Russian planning system, at the beginning of each year a detailed plan of the balance of payments is drawn up which provides for the imports required to supply the population and the sums needed to cover financial obligations. On the basis of this estimate the total quantity of exports is calculated. The composition of these exports is decided on after a careful study of the position of the export markets.

The various import and export organizations of the People's Commissariat for Foreign Trade are financially self-supporting. They enjoy the rights of a juridical person. Among the export associations for agricultural products may be mentioned the *Exportchleb*, founded in 1923, a special organization which the State entrusted with the monopoly of exports of cereals, the *Exportljon*, an organization for the export of flax and hemp fibres; the *Exportles*, founded in 1926 for the export of wood; the *Puschosyndicat* for the export of furs etc. There are similar organizations for the various imports. They deal with the import (and sometimes also export) trade along the lines laid down by the plan after confirmation from the People's Commissariat for Foreign Trade.

The basic principle that foreign trade should be conducted by the State has not so far been modified. Article 14 of the New Constitution of the end of 1936

cites foreign trade based on a State Monopoly as coming within the competence of the supreme power of the U. S. S. R.

In so far as the new social order eliminated the free play of private enterprise it involved the planning of the whole economic activity of the country. And this required in particular a State monopoly of foreign trade. The regulation of economic relations with the outside world was a necessary complement to the regulation of the whole internal economic activity.

Trade treaties between the U. S. S. R. and other countries.

In the first few years after the raising of the economic blockade against the Soviet Republic foreign trade was to a large extent more or less fortuitous. The first trade treaties were only concluded after the introduction of the "new economic policy" (N. E. P.) in 1921.

The first treaties were extremely involved because the negotiators represented countries whose constitutions and economic systems differed fundamentally. A *modus vivendi* for economic cooperation was only found slowly.

The principles of the U. S. S. R. foreign trade monopoly were made the basis for her foreign trade agreements.

Trade treaties between the U. S. S. R. and other States are almost all, as has been the practice in other international trade treaties for over a century, based on the most favoured nation clause. Every preferential tariff granted by one country to another country is automatically applied to the U. S. S. R. as well.

Naturally we cannot enumerate here all the trade treaties concluded by the U. S. S. R. with other countries during the twenty years of her existence, much less undertake a detailed study. Here we shall confine ourselves to outlining the main characteristics of the Soviet Union's foreign trade policy as shown by her principal trade treaties.

On February 7, 1924 the U. S. S. R. concluded a trade treaty with *Italy*—the first Russian trade treaty, and the first expression of the Soviet's foreign trade policy. Trade agreements preceding this treaty, such as those with Austria, the United Kingdom, Norway, Denmark and Italy herself (in 1921) were no more than declarations describing the lines along which future trade relations would be developed.

The treaty with Italy is in the case of nearly every commodity based on the most favoured nation clause, though, as in most other Russian trade treaties, this clause does not extend to the privileges conceded by the U. S. S. R. to the Baltic countries (Estonia, Latvia and Lithuania) and the Eastern countries (Iran, Mongolia, etc.).

The principles formulated in this treaty influenced the later practice of the U. S. S. R. in foreign trade and appeared in some form in all subsequent trade treaties of the U. S. S. R.

A customs convention was signed at the same time as the trade treaty, and this conceded reciprocal tariff reductions on the most important Italian and

Russian export items. The tariff convention, however, did not lay down the general principle of the most favoured nation clause for trade relations between the U. S. S. R. and Italy, but confined its application to specific goods.

On May 6, 1933 the convention of February 7, 1924 was replaced by a new tariff agreement based on the principle of most favoured nation treatment for all goods.

To increase Russian imports from Italy the Italian Government granted guarantee credits amounting to 75 per cent. of the Russian orders to Italian business houses for their export business with the U. S. S. R. These credits amounted in all to nearly 1 milliard lire (950 millions) and were paid back shortly after the dates fixed. The Credit Agreement signed on June 15, 1935 established fixed quotas for imports of Soviet goods into Italy, which for the most part were to correspond with the level of actual exports from the U. S. S. R. to Italy in 1934. Russian exports to Italy are paid for in lire, the U. S. S. R. using the exchange to buy Italian goods. This is naturally an advantage considering the strict exchange control. The agreement remained in force until July 30, 1936.

The chief U. S. S. R. exports to Italy are wheat, petroleum products, wood, coal, furs, iron-ore etc. Italy's chief exports to Russia are industrial products such as electric motors, motor cars, chemicals, etc.

Trade relations, regulated by the trade treaty of 1924 and the subsequent supplementary agreements, have in general developed satisfactorily. In recent years there have been certain controversies but these were resolved by the economic agreement concluded on February 7, 1939. This agreement also greatly extended the basis of trade by means of clearing arrangements.

Before the War Russia's trade with *Germany* was greater than with any other State. Imports from Germany constituted 47.5 per cent. of total Russian imports, while exports to Germany amounted to 30 per cent. of all Russia's exports.

After the War, following the provisional agreement with Germany of May 6, 1921, a trade treaty was concluded on October 12, 1925 which regulated the whole complex of economic relations between the two countries. The general provisions of this treaty confirmed Article 4 of the Treaty of Rapallo of April 6, 1922 by which the most favoured nation clause was made applicable to the general relations between the two countries, with the exception, as before, of preferences granted by Russia to the Baltic states, Iran, Mongolia, etc.

On May 28, 1932 a customs agreement was signed which allowed reductions of duties, or even duty free entry of many Russian exports to Germany such as cotton, flax etc.

In 1926 a credit agreement which had been concluded between the U. S. S. R. and German firms for the delivery of goods to the U. S. S. R. amounting to 300 million marks, was guaranteed up to 60 per cent. by the German Government (the German Government accepting 35 per cent. of the guarantee and the Governments of the provinces (*Länder*) in which the firms were situated 25 per cent.). The loans were for from 3 to 4 years. This was the first case of a large credit being guaranteed by the Reich for exports to the U. S. S. R..

To facilitate the exchange of goods in so far as it was dependent on exchange control, a protocol was ratified on December 22, 1931 by which commercial operations should take place in reichsmarks. By renouncing her claim to be paid in foreign currency for goods exported to Germany the U. S. S. R. obtained the right to pay in reichsmarks for orders placed in Germany. This made the German balance of payments more favourable. In 1933 a second credit agreement for a sum of 300 million marks was concluded.

On April 9, 1935 the Soviet-German annual Economic Agreement was signed. It provided for the U. S. S. R. placing new orders in Germany worth 200 million marks in addition to the existing quantities purchased. For these orders a bankers' syndicate, under the direction of the *Deutsche Bank- und Discontogesellschaft* and the *Dresdner Bank*, granted the U. S. S. R. a credit of 200 million reichsmarks for an average term of 5 years. The German Government guaranteed this credit up to 70 per cent. Payments for Russian exports could as a rule only be used to pay for orders placed in Germany *i. e.* for the payment of German exports to the U. S. S. R.

The effect of the 1935 credit agreement was to make Germany the largest exporter to the U. S. S. R. in 1937. By 1938, however, Germany had fallen back to sixth place. Germany has also lost some of her importance as an importer of Russian goods, despite a rise from fifth place in 1937 to fourth place in 1938.

On December 19, 1938 the existing economic agreement on trade and payments was extended to cover 1939 without alteration. By this agreement the U. S. S. R. may export in 1939 an amount equal to the value of imports from Germany in 1934 and 1935, *viz.* 200 million reichsmarks. As before, payments are to be made in reichsmarks through special accounts with the leading German banks and also with the *Garantie- und Kreditbank für den Osten* in Berlin, a daughter company of the State Bank of the U. S. S. R.

Before the War the United Kingdom held second place in Russian foreign trade, coming second to Germany, although at a considerable distance. Since the War trade relations between the U.S.S.R. and the United Kingdom have undergone many vicissitudes, which may, however, be neglected here. On February 16, 1934 a provisional trade treaty was concluded to put trade between the two countries on a normal basis. This agreement also applies to India, Newfoundland, Southern Rhodesia, all the British colonies and to the British Protectorates in South Africa.

This provisional treaty is based on the most-favoured-nation clause, although with certain modifications introduced because of the trade policy of the U. S. S. R. (special treatment for Baltic and Far-East States) and of the British system of imperial preference. The treaty aims at a gradual readjustment of the Anglo-Soviet trade balance. U. S. S. R. payments for imports from the United Kingdom 1 to 1.7 in 1934, 1 to and receipts for exports to the United Kingdom had to be in the proportion of 1.6 in 1935, 1 to 1.4 in 1936, 1 to 1.2 in 1937 and 1 to 1.1 subsequently. These proportions were strictly observed by the U. S. S. R., and even exceeded, for at the end of 1937 £16.113.000 were paid in excess of the given proportion.

On July 28, 1936 an agreement was concluded which granted a credit of 10 million pounds sterling to the U. S. S. R. The credit was to be applied to

the payment in specie of Soviet orders for goods of British origin placed between August 1, 1936 and September 30, 1937.

The chief U. S. S. R. exports to the United Kingdom are wood, flax, cereals, furs, bristles etc. In 1937 U. S. S. R. exports to the United Kingdom amounted to 32.7 per cent. of her total exports, while Russian imports from the United Kingdom amounted in the same year to 14.3 per cent. of all imports, compared with 6.2 per cent. in 1929.

The present composition of Russian exports to *France* has changed considerably compared with the pre-war position. In 1913 cereals amounted to almost half (48 per cent.) of total Russian exports to France, flax and hemp coming second, and then wood and naphtha products. In 1933 exports of cereals to France barely amounted to 1 per cent. of the 1913 quantity. At the same time exports of the other products mentioned were higher.

These changes resulted in part from alterations in the economic structure of the U. S. S. R. and in part from a heavy decrease in wheat imports into France from all countries.

On January 11, 1934 a trade treaty between the U. S. S. R. and France was signed which secured the application of minimum tariffs to a number of Soviet products, such as cereals, butter and eggs. The advantageous treatment secured to cereals from the U. S. S. R. is largely formal, for, as has just been said, exports of these have greatly decreased. On the other hand sawn wood, which had been kept out by prohibitive tariffs, is now being increasingly imported, despite quota restrictions.

By the same treaty the U. S. S. R. agrees to place orders in France equal in value to the value of Soviet goods which are exported into France through special import quotas.

U. S. S. R. exports to France amount to an average of 5 per cent. of total Soviet exports. Imports from France in 1935 were 7.3 per cent. of total imports, but in 1937 they fell to 2.1 per cent.

Trade treaties with the *Baltic States* (Estonia, Latvia and Lithuania) are based not only on the most favoured nation clause but also on special treatment (*clause balte*). By this clause the contracting parties agree not to extend these special privileges to other States. This applies especially to the reductions on Baltic and Soviet tariffs laid down by the tariff convention.

In each of these States, the volume and terms of trade are based on a balance of trade, the value of exports from the U. S. S. R. to any one of these States having to equal the value of imports from that State to the U. S. S. R.

All the *Scandinavian Countries* and also *Belgium* have concluded trade treaties with the U. S. S. R. The first was *Sweden*, who on March 15, 1924 signed an agreement with the U. S. S. R. based on the reciprocal most favoured nation clause. On June 30, 1933 the total Swedish guarantee of credit for Soviet imports was fixed at Kr. 75 million.

Trade agreement based on the most-favoured-nation clause were also concluded with the *Central and South European States* (Poland, Czechoslovakia, Romania and Greece). The annual trade agreement with *Poland*, renewed each year since 1934, grants the U. S. S. R. tariff reductions on certain goods while

quotas have been fixed corresponding to the sums paid by the U. S. S. R. for imports from Poland. On February 19, 1939 a commercial agreement relating to reciprocal trade and clearing was concluded. This was the first occasion on which these two countries had signed a treaty based on the most favoured nation clause. By this agreement the U. S. S. R. will export tobacco, wool, cotton, fertilizers, furs etc. while Poland will supply the U. S. S. R. with coal, textiles, artificial silk etc. All operations will be conducted through the Polish Institute for the Adjustment of Payments.

Apart from the peace treaty of 1921, which, like that with Iran of the same year, deals with many economic questions, a trade agreement was signed with *Turkey* on March 11, 1927. It gives a precise definition to the trade relations between the two countries, which had hitherto been regulated by provisional arrangements. The treaty is based on the most favoured nation clause and aims at balancing Soviet exports to Turkey with Turkey's exports to the U. S. S. R.

On October 27, 1931 a new trade treaty was concluded with *Iran*, the first made by the Iranian Government since the publication in 1930 of the Law on the Iranian State Monopoly of Foreign Trade. The treaty, which was later renewed, was also based on the reciprocal barter principle. It established quotas for the import of the most important products. The U. S. S. R. exports to Iran cotton goods, agricultural machinery etc. and imports wool, skins, rice, dried fruits, etc.

On January 20, 1925 an economic agreement was signed with *Japan*, article 4 of which reads:— "Without prejudicing the right of each contracting party to regulate the international trade of his own country, it is agreed that neither of the two contracting parties shall apply, to the disadvantage of the other country, measures of prohibition, restriction, or taxation liable to impede the development of exchange, economic or otherwise, between the two countries. Both countries, in fact, intend to apply the most favoured nation clause to the trade, navigation, and industry of each country.

By a credit agreement of 1930 Japanese industry received contracts from Russia amounting to 41 million yen. To enable this credit to be financed the Japanese Government undertook to guarantee the loan.

Before the War Russia's balance of trade with Japan was favourable. Russia's chief exports to Japan were foodstuffs and semi-manufactured goods such as cereals, fish, oilcakes, linseed, fertilizers, raw and sawn wood, etc. Japan exported to Russia her surplus agricultural output such as rice, vegetables and fruits, and also certain industrial products. At present the U. S. S. R. balance of trade with Japan is unfavourable, since in payment to the U. S. S. R. for the Manchurian Railway Japan has agreed to employ 93.3 million yen of the purchase price in supplying goods to the U. S. S. R., starting from 1936. By the East China Railway Treaty, consignments of goods must have been exported by March 23, 1938.

Finally, on August 4, 1937 a trade agreement—one of the most important—was concluded with the *United States* by which the United States concede unconditional and unrestricted most favoured nation treatment to exports from the U. S. S. R. Thus Soviet exports enjoy every benefit (and not only as regards

the amount of the tariff, as was the case before July 13, 1935) at present applied by the United States to imports of goods from other countries. Thus by this treaty the U. S. S. R. enjoys the preferences accorded since 1934 to other nations by the Hull series of trade treaties.

The reduced tariffs apply particularly to linen goods, sawn timber, caviare, manganese ore, matches, etc., which are some of the principal Soviet exports.

In August 1938 this treaty was extended for 1939 and the Soviet Union agreed to buy goods from the United States up to a value of at least 40 million dollars, and at the same time to reduce exports of coal to the United States to 400,000 metric tons.

The signing of this treaty has been very favourable to the development of trade between the two countries. In 1929 U. S. S. R. exports to the United States amounted to 4.6 of total Soviet exports. By 1937 this figure had risen to 7.8 per cent. In the same years Russian imports from the United States were 20.1 per cent and 18.2 per cent., the United States taking first place as importer to Russia in 1937.

This covers almost all the countries whose trade relations with the U. S. S. R. are regulated by treaties or economic agreements. In addition there are a number of other countries such as the Netherlands, Switzerland etc. where trade with the U. S. S. R. is of considerable importance but is not yet directly regulated.

Volume and character of the foreign trade of the U. S. S. R.

The aggregate volume of foreign trade of the U. S. S. R. over twenty years, from the first years of the revolution to 1937 inclusive, in comparison with pre-war trade is shown in Table I on the following page.

As the table shows, foreign trade and especially exports ceased almost completely in the first period of revolution, the years of the economic blockade and of greatest inflation. In 1919 exports amounted to 0.4 million roubles and imports 14 million roubles. The NEP (New Economic Policy) introduced in 1921 and good harvests in 1922 and 1923 led to an increase in foreign trade, and by 1925 imports were greater than in 1913 by over a half. Exports however were only about a third of the pre-war figure.

In 1930 Russia's foreign trade reached the record figure of 9 milliard roubles, exports amounting to 4 ½ milliard roubles, a record for the post-war period. But from 1931 total foreign trade decreased from year to year until 1936 when it began to rise again, reaching in 1937 half the 1931 figure. The largest imports since the war were in 1931 at the height of the world economic crisis. Imports rose again in 1935-37 though still to only a third of the 1931 figure. The depression and trade policy in general led to a reduction of Russia's foreign trade and compelled her to reduce imports as much as possible. This tendency is one of the characteristic features of Russia's foreign trade relations with the world market.

TABLE I. — *Foreign Trade of the U. S. S. R., from 1918 to 1937, compared with the 1909-13 average.*

(Millions of gold roubles, at the exchange rate fixed in April 1936).

Year	Exports	Imports	Total Transactions	Balance of trade
Average 1909-1913	6,513.9	4,994.1	11,508.0	— 1,519.8
1913	6,596.4	6,022.5	12,618.9	+ 573.9
1918	35.5	460.8	496.3	— 425.3
1919	0.4	14.0	14.4	— 13.6
1920	6.1	125.7	131.8	— 119.6
1921	88.5	922.9	1,011.4	— 834.4
1922	357.4	1,181.7	1,539.1	— 824.3
1923	954.8	627.2	1,582.0	+ 327.6
1924	1,476.1	1,138.8	2,614.9	+ 337.3
1925	2,664.4	3,620.9	6,285.3	— 956.5
1926	3,173.7	3,016.5	6,190.2	+ 157.2
1927	3,267.0	3,320.5	6,587.5	— 53.5
1928	3,518.9	4,174.6	7,693.5	— 655.7
1929	4,045.8	3,857.0	7,902.8	+ 188.8
1930	4,539.3	4,637.5	9,176.8	— 98.2
1931	3,553.1	4,839.9	8,393.0	— 1,286.8
1932	2,518.2	3,083.5	5,601.7	— 565.3
1933	2,167.5	1,525.1	3,692.6	+ 642.4
1934	1,832.4	1,018.0	2,850.4	+ 814.4
1935	1,609.3	1,057.2	2,666.5	+ 552.1
1936	1,359.1	1,352.5	2,711.6	+ 6.6
1937	1,728.6	1,341.3	3,069.9	+ 387.3

(1) Prices of goods for the years 1918-24 are calculated on the basis of the 1913 price level while from 1925 they are given in the prices of the corresponding year. For 1913 exports of platinum are included but for post-war years total exports do not include exports of platinum.

In this respect, a consideration of the volume of the foreign trade of the U. S. S. R. over the main periods of her economic development is very instructive. These periods are 1. the period of war communism and the NEP, 1918-28; 2. the period of the first Five Year Plan, 1929-32; and 3. the period of the second Five Year Plan, 1933-37.

TABLE II. — *Exports and Imports in the three main periods of economic development in the U. S. S. R.*

(Millions of roubles at the April 1936 rate of exchange for foreign trade settlements).

	Period of war communism and NEP 1918-28	First Five Year Plan 1929-32	Second Five Year Plan 1933-37
Exports	12,023.9	18,175.3	8,696.9
Imports	14,429.0	20,592.5	6,294.1
Total transactions	26,452.9	38,767.8	14,991.0
Balance	— 2,405.1	— 2,417.2	+ 2,402.0

This comparison shows that in the first Five Year Plan foreign trade reached its highest point with almost 39 milliard roubles, but the balance was still somewhat more unfavourable than in the period of war communism and NEP. The corresponding figures for the second Five Year Plan are not only lower than those for the period of war communism and NEP, but also lower than those for the first Five Year Plan. Indeed, exports during the second Five Year Plan are less than half exports in the first Five Year Plan, and imports less than a third in the same period. But the main difference is that in the period of war communism and NEP total trade showed an unfavourable balance of 2.4 milliard roubles and the first Five Year Plan almost the same, while in the second Five Year Plan total trade showed a favourable balance of 2.4 milliard roubles. In this latter period exports fell less than imports, leaving a favourable balance of trade in each of the five years of the second Plan.

This development in foreign trade reflects profound changes in the structure of the Soviet economic system. The U. S. S. R.'s economic policy aimed, as is well known, at industrializing the country as much as possible within a short time and at developing the technique and mechanization of agriculture; and for the most part this could only be accomplished by importing a great variety of machines and equipment from abroad. The main aim of foreign trade was the importation of necessary manufactured goods. Exports only served as a means of satisfying commercial requirements in accordance with this aim.

Sometimes, as in 1930 with the prices of cereals, export prices had to be kept lower than world prices; for it was not the immediate return that was important but the realization of the industrial plan for the country as a whole. This was the guiding principle during the first Five Year Plan. The result was an adverse balance for the value of the imports required generally exceeded that of exports. Exports had to be pushed by every means, not to obtain a favourable balance of trade, but, to repeat, to increase further imports of machine equipment and so by means of a temporary large dependence on foreign supplies to organize the country as quickly as possible on a permanent basis of economic independence.

In 1931 imports of machines into the U. S. S. R. amounted to a third, and in 1932 to almost a half, of total world exports of all machines (with the exception of motor cars). Probably no country had ever before imported in so short a period as five years as many machines as did the U. S. S. R. during the first Five Year Plan. Meanwhile the supply of machines to agriculture has steadily increased. In 1929 only about 500 tractors were in use in agriculture. By 1938 the figure had already risen to almost half a million (454,000). In 1936 there were 50,300 combine harvesters and in 1938 the figure had risen to 153,500, etc. As a result of the increased home output imports of these machines in the second five year period have fallen to almost nothing.

This fall in imports reduced Russia's foreign indebtedness from the maximum of 1,400 million roubles in 1931 to 375 million roubles in 1937. Since then it has sunk still further and at present total indebtedness abroad is barely twice the 200 million roubles paid in 1913 in interest and amortization on Russian foreign debts alone.

In 1935, for the first time in her 18 years' existence, the U. S. S. R. had a favourable balance both of trade and of payments. Before the War a favourable balance of trade was accompanied by an unfavourable balance of payments owing to the large sums which Russia had to pay abroad for the service of her foreign debts. Before the War Russia's balance of payments was largely dependent on the condition of the harvest, and exports and prices of cereals. To-day, as we shall see shortly, Soviet exports are much less dependent on exports of cereals, while their composition has become much more varied.

In this context it may also be mentioned that the output of gold in the U. S. S. R. has risen from 53,000 kg in 1930 to from 240,000 to 245,000 kg in 1937 and at present represents about a sixth of the world output. The U. S. S. R. therefore is the second largest producing country, coming next to South Africa, though at a considerable distance. With the present difficulties in the international exchange of goods and money this steady increase in the supplies of gold in the U. S. S. R. has considerable significance for the country, especially as regards her currency and the development of her foreign trade.

A further tendency of Russia's foreign trade is the fall in the percentage share of exports in the total production of the country. This is a result of the increasing consumption of the goods within the country. In 1913 exports (in terms of value) amounted to 11.6 per cent. of the total output; in 1930, the year of the greatest volume of exports from Russia, this proportion was only 3.5 and had fallen in 1938 to 1 per cent. At present only 1 per cent of the total output of cereals is exported, compared with 12.7 per cent. for wheat in 1913, 34 per cent. for barley and 28.3 per cent. for maize. At present Russian production is turning more and more to the rapidly developing home market.

The following table shows the quantities of cereals and legumes exported before the War, in the NEP period, and during the first and second Five Year Plans.

TABLE III. — *Exports of Cereals and Legumes in the four different economic periods:*

(Thousands of metric tons).

Crops	Average 1909-13	Average 1923-24/1927-28	Average 1929-32	Average 1933-37
	Economic year		Calendar year	
Wheat	4,239	554	1,395	516
Rye	655	416	544	122
Barley	3,718	326	682	333
Oats	1,088	54	191	88
Maize	763	145	118	52
Total for cereals . . .	10,463	1,495	2,930	1,111
Legumes	370	55	92	67

Compared with the pre-war period, exports of all cereals and of legumes have fallen off greatly since the war. This was especially so in the NEP period when agriculture, which had been ruined by the years of war, revolution and hunger was only concerned with reconstructing its productive capacity.

Thus during the First Five Year plan exports rose relatively, exports of wheat reaching about a third of the pre-war figure, and of the five main cereals taken together (wheat, rye, barley, oats and maize) somewhat over a third. During the second Five Year Plan exports fell even lower than in the NEP period. The reasons for this will be shown in the discussion on exports of wheat.

The following table shows the value of exports of the chief agricultural products for each year from 1920 to 1937, compared with the average for the years 1909-13.

TABLE IV. — *Exports of the Main Agricultural Products.*

(Millions of roubles at the April 1936 rate of exchange).

Year	Cereals	Flax, flax-twine and linen cloth	Cotton and cotton goods	Butter	Sugar and sugar products	Wood and wood products	Skins and furs.
Average 1909-13 .	2,619.7	343.8	147.1	272.8	179.3	635.5	31.7
1920.	0.9	1.9	—	—	0.0	2.2	0.0
1929.	43.9	222.6	195.1	135.8	150.5	668.0	467.0
1930.	882.4	155.0	205.5	46.0	118.3	743.5	336.6
1931.	658.9	85.8	203.1	106.4	143.2	497.5	246.2
1932.	228.1	100.4	226.7	69.5	56.1	352.7	185.3
1933.	176.9	97.1	136.8	53.5	24.3	336.1	168.9
1934.	83.6	95.3	108.0	44.5	20.0	391.1	141.3
1935.	161.9	91.7	75.2	43.0	23.9	365.6	132.0
1936.	35.9	81.4	67.4	42.1	36.8	359.5	155.1
1937.	257.6	54.8	130.7	31.8	38.5	437.8	153.6

This shows that exports of wheat, even the maximum quantity of 1930, were only a third of the 1909-13 figure. They then fell still further but later rose to a value of 257.6 million roubles in 1937, amounting to a little less than a third of the 1930 figure. Exports of butter and sugar reached their highest point in 1929 but they were still less than in 1909-13. The returns from exports of a large number of other goods, however, such as wood, furs and skins, and cotton in post-war years have been higher and sometimes considerably higher than before the War. For example in 1930 exports of wood reached 743.5 million roubles compared with 635.5 million roubles before the War. The value of skins and furs were 467 million roubles in 1929 against 31.7 million roubles before the War. In 1932 exports of cotton and cotton goods reached the record value of 226.7 million roubles against 147.1 million roubles before the War.

The Table V shows the percentage share (in terms of value) of the chief agricultural goods in total exports from Russia.

TABLE V. — *Percentage Share of the Chief Agricultural Products in the value of total Exports from the U. S. S. R.*

Product	1913	1932	1936	1937
Wheat	14.8	3.4	0.7	10.8
Rye	2.2	2.3	0.8	2.1
Barley	12.3	2.1	0.6	2.0
Flax	5.7	2.5	5.7	2.8
Cotton and cotton goods	2.9	9.8	4.7	7.4
Butter	4.7	2.8	3.1	1.8
Sugar	1.3	2.3	2.4	2.0
Wood and wood products	12.3	15.0	26.5	25.4
Skins and furs	—	7.5	7.6	6.2

The percentage shares of cotton, wood, furs and skins have therefore risen somewhat in comparison to 1913 whereas those of wheat, barley, butter and in part also flax have fallen considerably.

These changes are all closely linked up with the altered structure of Russian foreign trade.

Alteration in the composition of Russian foreign trade.

The economic plan of the U. S. S. R., which, as said before, effected among other things a thorough technical reorganization of agriculture, also altered the composition of Russia's foreign trade. In the last few years profound changes have taken place both in the import and export trade. The following table shows the percentage share of agricultural and non-agricultural exports in the total world trade of the U. S. S. R. compared with the figures for 1913.

TABLE VI. — *Percentage Share of Agricultural and Non-agricultural Products in the Total Trade of the U. S. S. R.*

Year	Agricultural goods	Other goods	Year	Agricultural goods	Other goods
1909-13	70.6	29.4	1931	42.1	57.9
1923-24	69.7	30.3	1932	31.9	68.1
1924-25	58.9	41.1	1933	28.8	71.2
1925-26	57.6	42.4	1934	28.4	71.6
1926-27	55.3	44.7	1935	26.7	73.3
1929 ⁽¹⁾	38.9	61.1	1936	20.3	79.7
1930	41.8	58.2	1937	31.7	68.3

⁽¹⁾ Until 1929 the financial year in the U. S. S. R. ran from October 1 to September 30 of the following year. Since 1929 it has coincided with the calendar year.

This table shows that before the War slightly over two-thirds of Russian exports consisted in agricultural goods, and slightly over one third in other goods of which a very important part were exports of unmanufactured wood. Half the agricultural exports consisted of bread cereals with a value of 625 million roubles, out of a total value of world exports of 1,501 million roubles in 1913⁽¹⁾. This predominance of agricultural exports was also the outstanding feature of the NEP period. For example in 1923-24 the share of agricultural goods in total U. S. S. R. exports (69.7 per cent.) was still almost as large as in 1913.

In 1924, for the first time in the history of the Soviet Union, wheat was exported, amounting to 40 per cent. of the exports of that time. Other agricultural products such as butter, eggs, etc. were also exported in considerable quantities. But at the same time, non-agricultural products such as wood, coal, manganese ore etc. were also being exported with the result that in 1924-25 59 per cent. of all exports were agricultural and 41 per cent. were non-agricultural. This tendency of agricultural exports to fall off, with a simultaneous increase in other exports, has been continuous and though slow at first, was rapid in the first, and even more so in the second, Five Year Plan.

In 1932 at the end of the first Five Year Plan, agricultural exports had already fallen to approximately a third of total exports, while industrial exports had risen to about two-thirds. Thus the relation between these two main categories of exports was then the exact reverse of that before the War. During the second Five Year Plan this trend became more and more marked, and by 1936 agricultural exports were no more than a fifth of total exports. In 1937, owing to a considerable increase in exports of cereals and cotton, the share of agricultural exports rose to a third, but in the same year the absolute figure for exports of industrial products showed an increase over 1936 of 97.3 million roubles.

Certainly, these figures are not to be analysed with mathematical precision; but they do show clearly the tendency of Russia's foreign trade to concentrate more and more on the export of non-agricultural goods. This means a complete change in the relation of the U. R. S. S. to the world market.

During the first and second Five Year Plans the value composition of both imports and exports, treated according to the various classes of goods (in accordance with the Brussels international classification) both show considerable changes, as shown in Table VII.

The table shows the large and characteristic changes which took place during the second Five Year Plan. Exports of the first class, livestock, which amounted to 2.3 per cent. in 1913, had fallen right off in 1937, and in fact, since 1931. At the same time, imports of this class increased substantially moving from 0.3 per cent. in 1913 to 3.4 per cent. in 1937. This shift is due to the position of stockraising in the U. S. S. R. During the first Five Year

(1) At the pre-war rate of exchange for roubles.

TABLE VII. — *Changes in the Value Composition of Exports and Imports taken by Classes of Commodities at the end of the Second Five Year Plan and before the War.*

(Percentages).

	Exports		Imports	
	1913	1937	1913	1937
1. — Livestock	2.3	—	0.3	3.4
2. — Foodstuffs and drinks	56.8	22.9	13.4	6.4
3. — Raw and semi-manufactured goods	38.7	58.6	51.0	49.9
4. — Manufactured goods	2.2	18.5	35.3	40.3
	100	100	100	100

Plan stockraising in particular underwent a crisis the causes of which were many and complex and which lasted into 1935. From then on there has been a considerable increase in the number of cattle owing to a series of measures taken by the Government.

The share of the second class — foodstuffs and drinks — has also been greatly reduced. In 1913 exports of these amounted to more than a half (57 per cent.) of all Russian exports whereas in 1937 they were only 23 per cent. This was not only a result of the development in recent years of the capacity of the home market, but also of the heavy fall in the prices of these commodities on the world market. Imports of these products also fell considerably: from 13.4 per cent. in 1913 to 6.4 per cent. in 1937.

The share of raw materials and semi-manufactured goods in total exports increased during this period by one and a half times, rising from 38.7 per cent. to 58.6 per cent. At the same time imports of goods in this class have fallen off somewhat, moving from 51.0 to 49.9 per cent. Raw and worked wood, petroleum, flax, cotton goods etc. all come into this class. At present they take first place in exports from the U. S. S. R., while in 1913 they were second at 39 per cent. of total exports. They were therefore considerably less important than exports of foodstuffs and drinks which in 1913 took first place with 57 per cent.

Undoubtedly, however, the most complete transformation has occurred in the foreign trade in manufactured goods. Exports of these rose from 2.2 per cent. in 1913 to 18.5 in 1937, mainly owing of the industrialization of the country. But at the same time, imports of manufactured goods, owing to the increased imports of machinery, consisting mainly of newly invented machines, rose from 35 per cent. in 1913 to 40.3 per cent. in 1937.

This change is characteristic and indicates a reorientation of Russia's foreign trade, the underlying cause of which is closely bound up with the economic

development of the U. S. S. R. and the slow transformation of what was an agricultural country into an increasingly industrial one. It is characteristic that the total value of agricultural production (calculations being based on 1926-27 prices) increased from 12.6 in 1913 to 15.8 milliard roubles. Over the same period the value of industrial production rose from 10.3 to 59.3 milliard roubles, nearly six (5.8) times greater.

The following table shows alterations in the structure of the Russian economic system over the period 1913-36.

TABLE VIII. — *Alterations in the Composition of Production and Exports of the U. S. S. R. during the last 24 years.*

Year	Percentage share of industry in the total output of the U. S. S. R.	Percentage share of industry in exports from the U. S. S. R.	Percentage share of agriculture in the total output of the U. S. S. R.	Percentage share of agriculture in exports from the U. S. S. R.
1913	42.1	30.0	57.9	70.0
1929	54.5	61.1	45.5	38.9
1930	61.6	58.2	38.4	41.8
1931	66.7	57.9	33.3	42.1
1932	70.7	68.1	29.3	31.9
1933	70.4	71.2	29.6	28.8
1936	79.2	80.1	20.8	19.9

This table shows the continuously increasing importance of industry in the production of the country during the last quarter of a century. The export trade shows a parallel movement, its composition approximating more and more to that of national production.

In 1913 industry's share in the total national production was 42.1 per cent. while it supplied only 30 per cent. of exports. By 1936 these percentages had risen to 79.2 and 80.1 respectively. The corresponding figures for production and exports of agricultural goods were 57.9 and 70 per cent. in 1913 compared with 20.8 and 19.9 per cent. in 1936.

Thus the general economic plan has ensured that exports were more and more closely adapted to changes in the internal structure of the economic system.

Certain conclusions regarding the economic possibilities of agricultural exports from Russia before the War and at the present time could be drawn from this fact; but to do so would be outside the scope of this short study.

(To be continued).

M. TCHERKINSKY.

INTERNATIONAL CHRONICLE OF AGRICULTURE

CUBA

Cuba's economic position depends mainly upon the prosperity of the sugar industry. In 1902 the United States granted a preference to Cuba of 20 per cent. which came into force in 1903, and from this date there was a strong tendency towards monoculture at the expense of other branches of production which had previously flourished (coffee) and which, though they did not entirely disappear, remained stationary alongside the dominant crop (fruit and vegetable growing, animal husbandry).

While sugar growing prospered, the whole economy of the country was based on the profits which could be made from this one crop, not merely manufactured goods but even supplies for immediate consumption being bought from abroad.

In terms of value, exports of sugar have always formed a very high percentage of total exports. In the five years 1909-13 they averaged about 70 per cent. rising to 89 per cent. in the five years 1919-23. During the next ten years they fell, being 75 per cent. for the five years 1929-33, but rose again to 82 per cent. in 1936.

This tendency was disastrous for the country even when times were prosperous. Cuba's economic life has become extremely sensitive to fluctuations in the trade cycle while the home market is so disorganised that very often producers do not trouble about the quality of goods supplied to this market and even the rural population thinks nothing of buying tinned and imported foodstuffs in place of home-grown products.

The producers and consumers needed educating, the more so as the country had to alter its policy completely when it appeared that the old prosperity based on sugar could not return.

The output of certain crops had to be expanded and new ones introduced; first to supply the country's own needs and secondly, if possible, to export. It was sought, often with success, to reduce and even eliminate imports of certain goods by increasing the output of some goods (rice), producing new ones (butter) or by setting up new industries. Although these alternatives are still far less important than sugar in Cuba, they have, with mining operations and receipts from tourists, to some extent helped to maintain the country's economic equilibrium in the difficult position in which the crisis in the sugar trade placed it.

The table on the following page shows the comparative importance of the principal items of Cuban export trade.

The predominance of the United States in this trade is shown by the following figures giving the percentage of the total value of Cuban exports going to the United States:

1932	1933	1934	1935	1936
71.25	67.67	75.26	79.31	78.72

*Percentage Share of the Principal Products in the Total Value
of Cuban Exports, 1932-36.*

	1932	1933	1934	1935	1936
Sugar and other sugar cane products:—					
Distilled products	0.88	1.48	3.56	1.38	0.89
Raw and refined sugar	66.90	68.58	68.24	70.18	72.71
Molasses	4.68	4.01	5.63	7.44	8.36
<i>Total</i>	<i>72.46</i>	<i>74.07</i>	<i>77.43</i>	<i>79.00</i>	<i>81.96</i>
Tobacco:—					
Raw	12.87	12.04	9.18	9.06	5.91
Manufactured	3.15	3.83	4.25	3.20	2.70
<i>Total</i>	<i>16.02</i>	<i>15.87</i>	<i>13.43</i>	<i>12.26</i>	<i>8.61</i>
Fresh fruits	3.51	2.06	2.57	2.05	1.98
Vegetables and cereals	2.74	1.51	0.94	0.92	1.05
Other commodities	5.27	6.49	5.62	5.77	6.40
<i>Grand Total</i>	<i>100.00</i>	<i>100.00</i>	<i>100.00</i>	<i>100.00</i>	<i>100.00</i>

Sugar ⁽¹⁾.

For the last few years before the War sales and prices of sugar depended on three markets—the local market, the United States market and the world market. The population of Cuba is small and the home market of limited importance. But the very existence of sugar growing in Cuba depends upon the possibilities of selling in the United States market and upon these depend also the quantities which must be placed on the world market and perhaps the need for restricting output. Until a short time before the War the United States market absorbed almost the whole of Cuba's output of sugar, which enjoyed the preferential tariff of 20 per cent. conceded by the Reciprocity Treaty of 1902 mentioned above.

However, Cuba must always meet competition on this market from United States producers of beet sugar, the sugar cane growers of Louisiana and Florida and from the sugar cane planters of Puerto Rico, the Philippines and Hawaii. The amount of preference granted must always depend on a compromise between protecting the interests of these producers and the desire on the part of the United States to maintain

⁽¹⁾ There are several recent works covering the development of the sugar crisis in general and in Cuba in particular. Here we shall confine ourselves to sketching in those facts necessary for an understanding of the position of sugar production in Cuba during the years 1937 and 1938.

economic and social, and consequently political, equilibrium in Cuba, and the latter's power of purchasing American commodities.

Cuba's exports to Europe before the Great War were small, but as the War proceeded they suddenly leapt to enormous proportions and the demand from the belligerent nations led to a rapid increase in output (4,097,771 metric tons ⁽¹⁾ in 1919). Prices reached such a level that the importing countries requested the United States to supervise prices and so keep them at a reasonable level. When, in 1919 this supervision was abolished, prices rose steeply and production expanded beyond all rational limits. But the great demand which had caused this rise did not outlast the War by very long, and Cuba found herself with very large stocks and faced with prices which had fallen from over 20 cents per lb. in 1920 to less than 2 cents in 1922. Beet growing did not recover rapidly in Europe, however, and as consumption increased there was a recovery from 1923 to 1925 which led Cuba to expand her output again, until it reached 5,272,268 metric tons in 1925.

Over the same period both Europe and the United States were reinforcing existing measures of protection and introducing new ones. (United Kingdom: tariffs, subsidies, preferences). Europe was increasing her output of beet and gradually approaching her pre-war level of production. At the same time, the cane planters of Puerto Rico, Hawaii and the Philippines and the beet growers of the United States were also increasing their output. Thus Cuba's market shrank simultaneously both in Europe and in the United States. At first she tried to remedy this by restricting her own output and then, in 1930, owing to the economic crisis and the increasing protectionism in the United States and elsewhere, she decided, with the principal countries selling sugar on the international market, on the Chadbourne Plan, which came into force for the 1931 crop. Despite the sacrifices conceded by the signatories, however, the prices of sugar continued to fall in 1931-32.

In these circumstances the United States gave her assistance. By the American sugar law of 1934 Cuba obtained a fixed quota which guaranteed her being able to place on the American market about 272,155 metric tons more than she had been able to do under the old tariff. Further, in 1934 a presidential decision reduced the customs tariff on Cuban sugar (96° polarization) from 2 to 1.50 cents. per lb. (Later, by the reciprocity trade agreement of August 1934 it was reduced to 0.90 cents as against the ordinary tariff of 1.875 cents.).

The Chadbourne agreement terminated on September 1, 1935. Its success had been small but the need for international collaboration remained and the International Sugar Conference, convened by the World Monetary and Economic Conference, concluded a new agreement on May 6, 1937 ⁽²⁾. Cuba was granted a quota of 940,000 metric tons for the free international markets. This quota equalled her exports for 1936. It was higher than that granted by the Chadbourne Plan and was renewed by the October 1937 session of the International Sugar Council.

With fixed quotas for the American and free international markets, and knowing the volume of local consumption, Cuba is in a position to adjust her output to the

(1) Owing to the diverse standards of weight used in the original sources, the figures in this section have all been converted into metric tons.

(2) For a full account of the London Conference see ROBERTSON, C. J., *The International Sugar Agreement. Monthly Bulletin of Agricultural Economics and Sociology*, International Institute of Agriculture, October 1937, pp. 358-368.

maximum quantity marketable and to avoid overproduction. Each year the Cuban Institute for the Stabilisation of the Sugar Market, which was founded on May 6, 1931 and represents all producers, fixes the quantity to be produced, arranges how this shall be distributed between the different producers and distributes it for export according to the different agreements and quotas fixed. The Institute's proposals must be approved by the Government before being carried into effect. The output authorized for 1937-38 was 2,714,531 metric tons, and the actual output 3,023,436 metric tons. A presidential decree of January 1, 1939 fixed the output for 1939 at 2,481,281 metric tons.

In April 1938, when the grinding of the sugar cane had been completed, prices on the American market fell lower than they had been for years and those on the world market fell below what they had been before the international agreement had been signed. The resulting average price was disastrous for Cuba and the larger part of the 1938 crop was still unsold in April.

The opinion in Cuba was that the quotas fixed by the international agreement should again be reduced. They were reduced by 5 per cent. at the April 1938 session of the International Sugar Council and by a further 5 per cent. at the July session of the same year, the second reduction applying from September 1, 1938. The quota for the free market thus fixed for Cuba for the year September 1, 1938-August 31, 1939 is 831,763 metric tons. The Cuban quota for the United States was fixed on June 4, 1938 at 1,780,596 metric tons.

A new market has been opened up to the Cuban refiners in the United States, where they are allowed to sell refined sugar for the production of fruit jams for export as part of the world quota and not as part of the Cuban quota to the United States. The importers must re-export within twelve months.

Besides raw and refined sugar, Cuba exports molasses, a by-product of the manufacture of sugar. But the export of molasses, which had seemed to be a solution to the problems raised by the sugar crisis, has itself become a difficult problem. The price of molasses is so low that production is no longer remunerative, but Cuba is loth to give it up as molasses production offers a supplementary occupation to the workers. A Government decree has even prohibited its manufacture at the same time as that of sugar in order to prolong the season which is, in any case, very short. Further, it is feared that by reducing manufacture and exports, production in other countries would be encouraged, and that by raising the price greatly the market would be captured by competitors supplying cheaply other raw materials for the production of synthetic alcohol. It is suggested that instead of being exported, molasses should be used for the manufacture of alcohol in Cuba itself.

The American Sugar Law of 1934 should have expired on December 31, 1937. The position which would have arisen if this law had not been prolonged had been causing much anxiety in Cuba and the news that the President of the United States had signed on September 1, 1937 a further law maintaining the quota systems was received with much satisfaction. The Cuban quota was fixed at 1,734,062 metric tons, 29 per cent. of the United States requirements. Further, the prices of sugar on the United States market, which are regulated by the Secretary of Agriculture, were to be fixed in relation to three other staple commodities. Finally, Cuba will share in all alterations of the quota, with the exception that if the output of the Philippines is insufficient to cover the quota allotted to that country, the deficit will be divided between the other suppliers to the exclusion of Cuba. As a result of this regulation the Cuban quota was raised to 92,033 metric tons in September, 1937. This represents Cuba's share in the additional quotas allotted to make up the deficit in the quota for American beet.

The most important event affecting Cuba's sugar industry in 1937 was the passing on August 25 of the *Law on the Coordination of Sugar Production*. This law which carries into effect an important part of the "Three Year Plan" ⁽¹⁾, was drawn up by a mixed committee of representatives of the sugar industry and members of Congress. One of its main aims is to protect the small grower. *Inter alia*, each grower is entitled to grind a quantity of sugar equal to his entire 1937 estimate, up to a maximum of 30,000 *arrobas* (1 *arroba* = 11.5 kg.). A deduction of 6 per cent. is made from the quotas of growers whose 1937 estimates exceeded 500,000 *arrobas*, and one of 12 per cent. from the quotas for sugar cane grown on land belonging to factories. If these deductions are insufficient, the deficiency is made up from a special small growers' protective fund.

In return for these special advantages small growers must devote part of their land to food crops.

The existing moratorium laws are extended to cover debts incurred by growers before June, 1933 as long as the debts remain unadjusted. Pending such adjustment by mutual consent, growers are not required to pay more than 20 per cent. of the net output of their plantations, and not more than 60 per cent. after adjustment.

Leases are extended as long as crop restriction lasts, provided rentals are paid regularly, cane is supplied and production maintained at a minimum of 30,000 *arrobas* per *caballeria* planted (1 *caballeria* = 13.42 hectares). Current rentals remain in force if they are not higher than those provided in the Act. If there has been no contract, rentals will not be lower than 70 dollars per *caballeria* while sugar is sold at the price obtaining when the law was passed. Rentals for irrigated lands, are increased by 50 per cent. Wages of those working on the crop were increased the increases being graded according to the average yields obtained by each mill in the three preceding years. Minimum wages are fixed for the crop season and also for the dead season.

Retail prices at stores in the factories must not be higher than those normally charged in the nearest town plus transport costs. Mill owners and operators of plantations must provide free sites for the erection of employees' and workers' cooperatives.

Mills and plantations with unused lands must place a reasonable proportion of these, free of charge, at the disposal of the workers, to enable them to grow food crops during the dead season.

Tobacco.

Cuba's most important product after sugar is tobacco. *Vuelta Abajo*, used for making cigar wrappers, and Havana cigars in general take first place. About half the output is consumed in the country, but 25 million cigars are exported per annum. The United Kingdom buys about a third of these, but the greater part goes to the United States. Nevertheless, the complaint is made in Cuba that the markets are neither as dispersed or as large as the excellent quality of the tobacco warrants. This is attributed partly to tariffs, which prevent this product from being imported into many countries, but also to a change in consumers' tastes, since for some time cigarettes have been preferred to cigars and oriental tobacco to the dark tobacco of Cuba. The consular agents abroad who have studied the question on the spot recommend that trade agreements should be reached with countries not producing tobacco, and that

⁽¹⁾ See p. 169.

a Cuban cigarette of oriental type more adapted to the changed taste of consumers should be manufactured. A tobacco experimental station has been set up to study questions relating to tobacco. It is also hoped to set up a national cigar factory.

Fruit and vegetables.

Cuba has been engaged in the production and export of fruits and vegetables for quite a long time, though until recently the trade has been of little importance. In the last few years, however, it has greatly increased, especially on the Isle of Pines. Exports of these products go mainly to the United States. The crops are earlier in Cuba than in the latter country and can therefore be easily marketed. In 1937 an agreement was reached between the fruit and vegetable producers of Florida and the Association of Horticulturists and Fruit and Vegetable Exporters of Cuba on the rules and seasons for imports into the United States. This agreement enables Cubans to market their products without harming American producers. The vegetables chiefly exported are tomatoes, egg-plants, potatoes, green peppers, Lima beans, cucumbers, ochras, squash and string beans. Large quantities of grape-fruit, avocado pears, pine-apples and bananas are also exported. The majority of these fruits go to the United States, though the Cuban grape-fruit is one of the most popular on the London market.

In May 1938 new possibilities were opened up to Cuban fruit growers by the *Compañía Sud-Americana de Vapores* offering to arrange for its vessels to touch Havana on their way from Chile to European ports from this date. The boats are fast and equipped for this type of freight. They are supplied with refrigeration equipment. Thus pine-apples, avocado pears, oranges and grape-fruit may find new outlets.

To improve the quality of fruit and vegetable exports and to help them to meet competition from other countries more successfully, a presidential Decree of December 16, 1936 imposed rules for the grading and packing of fruits and vegetables for export.

Coffee.

Coffee was introduced into Cuba at the end of the 18th century and was of great importance until the expansion of sugar cane growing and the absence of tariff protection led to the destruction of many plantations. After the sugar crisis, however, there was a movement to return to coffee growing. Sheltered by protective duties, output was soon adequate to satisfy the home demand at remunerative prices, but it was not long before overproduction occurred and surpluses of coffee, whose quality and cost of production made competition difficult with that from other sources, had to be placed on foreign markets. In 1934 the Government founded the Cuban Institute for the Stabilisation of the Coffee Market to study all questions relating to the cultivation, preparation and sale of coffee. In July, 1935 exporters were required to obtain export permits and holders of raw coffee to withhold 25 per cent. of their stocks from the market. Such stocks could only be marketed by the Institute. Some time later the 25 per cent. was raised to 50 per cent. The Department of Agriculture was then authorized to fix in April of each year the percentage of coffee to be held off the market, calculations being based on the official estimates of home production and consumption. Minimum prices were also fixed for the producers of non-decorticated coffee and maximum and minimum prices for middlemen. A series of taxes on coffee were introduced to cover the costs of organizing the coffee market.

In August 1937 the representatives of fifteen countries met at Havana for the second Panamerican Coffee Conference. The conference decided to eliminate poor quality coffees in order to stimulate consumption and raise the price without having recourse to crop restriction⁽¹⁾. One of the Conference's decisions to which Cuba adhered is the payment to the Panamerican Coffee Office for a propaganda fund, of 5 cents on each 60 kg. sack exported. The lowest quality which might be exported was also decided. In addition to the Panamerican Conference, two national coffee conferences were held at Cuba in 1937 and 1938, to consider measures for improving coffee growing and making it more remunerative. The second conference recommended the inclusion of coffee in all treaties of commerce, particularly in those concluded with countries having a controlled economy. Before the second conference, a decree of January 10, 1938 had introduced an export premium to compensate for the low prices of coffee. The Department of Agriculture and the Institute for the Stabilization of the Coffee Market pay the premium (0.25 dollars per quintal of 100 pounds of 460 grams exported) out of a special fund.

The various measures taken have improved the general position of the market, though that of producers still leaves much to be desired.

Stock-raising.

In 1937 Cuba had from 2,600,000 to 2,900,000 head of *cattle*. Stockraising is already sufficient for national requirements, and must now even find outlets for a surplus of 50,000 head of cattle annually. A presidential Decree of December 16, 1937 set up a commission for the protection of home stockraising. To encourage the rearing of *pigs*, for which the natural conditions of the country are suitable, a decree of January 2, 1937 allowed pigs of the main breeds to be imported duty free, for the purpose of improving Cuban stock.

The output of *cheese* has increased considerably during the last few years. Up to 90 per cent. of the demand for *condensed milk* is covered by home production. The output of *butter* has so much increased since 1928, when 1,424,164 lbs. of butter costing 585,871 dollars had still to be imported, that in 1936 651,512 lbs., worth 132,612 dollars, were exported. The home output is estimated at 3,500,000 - 4,500,000 lbs.

Other animal products forming important and relatively stable exports are *skins and hides*. These exports could probably be substantially increased by improving methods of stockraising and of preparing the skins and hides, and above all by careful classification before placing them on the market.

Henequen.

Henequen, a strong fibre which is popular for manufacturing twine and cord, is obtained from the *Agave fourcroydes*. It is grown chiefly in Mexico, but the climatic, soil and rainfall conditions in Cuba are well suited to its cultivation, while low costs

(1) For further details see ARCOLEO, F., The International Organization of the Coffee Market. *Monthly Bulletin of Agricultural Economics and Sociology*. International Institute of Agriculture, September 1938, pp. 419-422.

of transport to the United States encourage the expansion of this crop. In 1937 there were six large plantations supplied with the equipment needed to prepare the fibre. About 8,000 acres are planted and there are still great possibilities of extending the acreage under this crop. The annual output of fibre is about 8 million lbs. Both the raw fibre and twine and cord are exported.

Rice.

Cuba's climate is suitable for rice growing, and since 1929 much has been done to increase the output of this crop. Rice may either be grown on irrigated land or as a dry crop, if suitable varieties are chosen. In 1938 500,000 quintals of rice were produced, but 3,500,000 quintals, valued at 12 million pesos, were still being imported. To produce this amount an average of 15,000 *caballerias* would have to be cultivated. This would give work to 175,000 persons, thus reducing unemployment and would also enable large areas, hitherto under sugar cane, to be used for other purposes and to be cultivated during the idle season.

Silk.

Silk production is one of the domestic industries which it is sought to introduce to supplement the returns of the small farmer and to give him employment during the dead season, which is long in Cuba. The mulberry remains green throughout the year in Cuba, so that by a careful choice of methods of rearing silkworms production can be carried on the whole year round. Tests are already being carried out to find the varieties of mulberry best suited to Cuba's climate, on methods of growing them, and on the most suitable varieties of silkworms and the diseases to which they may be subject. A spinning and weaving establishment has been set up to instruct a number of workers who will later teach others the technique of silk manufacture.

The Department of Agriculture has planted 200,000 mulberry trees which, like the silkworm eggs, have been distributed between the farmers in the area. The mulberry, which also supplies an excellent livestock feed, may, as in the case of rice, be grown on surplus lands at present planted with sugar cane.

Wood.

Although the expansion of sugar cane production has led to much deforestation, forests still cover a sixth of Cuba's territory. Cuba is rich in valuable woods such as cedar, mahogany, and ebony, which are exported. The Three Year Plan, referred to below, comprises reforestation with valuable varieties of trees.

Other products.

Eggs, cacao, honey, maize and especially oilseeds and oil bearing fruits (sunflower, groundnut, sesame, soya and coconut) are becoming more important, especially since the imposition of protective duties on imports of soya oil.

The Three Year Plan.

New crops had been encouraged at different dates well before the publication in 1937 of the Three Year, or Economic and Social Reconstruction Plan. But these earlier efforts did not form part of an organic whole. They were introduced piecemeal mainly for economic and commercial ends. The authors of the Three Year Plan had given much thought to the matter since the coming of the new régime, and they realised that Cuba's real problem is a social one. Only by solving the problem of the land system and general and vocational education can the economic position be improved. The Three Year Plan goes to the very root of the evil, the difficult position of the small farmer, or *colono*, who is generally a tenant, most frequently of the *métayer* type, more rarely owner, but almost always weighed down with debt. Further, the *colono's* tenure of the land is not guaranteed long enough to tempt him to introduce improvements. He cannot obtain credit on advantageous conditions and is often too ignorant to be able to augment his meagre resources through other occupations, even if these are not forbidden by the landowner.

The Three Year Plan, however, is more a general programme than a detailed plan. The different schemes will be carried out progressively by special laws, as has already been done in coordinating sugar production and in the reallocation and settlement of land. The words "three year" do not imply that the schemes will be completed, or even begun, within three years. The intention is rather to study all the problems included in the programme as a whole during these three years and to start carrying some of them out as opportunity arises.

As regards agriculture, the Three Year Plan comprises the following points:—

1. Coordination of sugar production. (See the law on the coordination of sugar production, p. 165.)
2. Land settlement. (See below for the law on State property and the reallocation of land).
3. Restriction of property rights.
4. Regulation of leases of rural properties.
5. Study of mine legislation and production.
6. Study of reforestation and utilisation of forests.
7. Utilisation of water, irrigation and drainage.
8. Development of farm instruction.
9. Regulation and improvement of stock-raising.
10. Development of bee-keeping and the cultivation of tobacco, coffee and cacao.
11. Expansion of fruit-growing.

The fundamental law for the execution of the Three Year Plan is the *Law on State Property and the Reallocation of Land*, which was signed by the President on December 17, 1937 and came into force with retroactive effect in January, 1938. Lands belonging to, leased by, or granted in concession by, the State, and lands bought by the Government or granted to it for this purpose, will be distributed and settled. To obtain such land, the would-be colonist must be Cuban and the head of a family. Naturalized citizens must have been domiciled in the country for at least ten years. Each head of a family

will receive a maximum of 30 acres of cultivable land. The land may not be distrained upon or transferred. The farmers must live on the new farm for six years, exploit it, lay out an orchard, and follow the advice of the General Office for State Lands and of the Treasury as regards the building of roads, marking of boundaries, etc. The law also contains regulations for the formation of cooperatives.

UNITED KINGDOM

MILK MARKET

About a quarter of the value of the agricultural output of the United Kingdom comes from milk. The value of the milk (and dairy produce) output is greater than all cereals and field crops put together and accounts for roughly a third of the total value of all livestock products.

Value of Milk Output and of Total Agricultural Output ⁽¹⁾.

	1930-31	1931-32	1932-33	1933-34	1934-35	1935-36	1936-37	1937-38
	£ 000	£ 000	£ 000	£ 000	£ 000	£ 000	£ 000	£ 000
England and Wales:								
Milk Output (and Dairy Produce) .	54,970	46,840	49,310	52,080	52,900	54,050	55,760	(*) 58,100
Total Output . . .	202,660	186,990	182,545	198,990	206,045	205,935	220,940	(*) 223,500
Scotland:								
Milk Output (and Dairy Produce) .	6,350	—	—	—	—	8,110	—	—
Total Output . . .	37,743	—	—	—	—	37,875	—	—
Northern Ireland:								
Milk Output (and Dairy Produce) .	2,673	2,766	2,559	2,217	2,461	2,395	...	...
Total Output . . .	12,769	12,531	10,374	10,941	12,305	14,515	...	...

(¹) Excluding state subsidies. (*) Provisional estimate.

The value of the output in England and Wales, about 70 per cent. of which is sold for liquid consumption, fell heavily in 1931 and 1932, but has been rising steadily in recent years. The rise has been due in the main to an increase in prices realised; the volume of output changed little between 1930 and 1935. In the last two or three years there has, however, been an increase also in the volume of output, of about 3 ½ per cent.; the value of the output has risen at the same time by about 5 ½ per cent.

The cause of the increase of the volume of output must be sought rather in changes in the number of cows in milk than in an improvement in yields, for the latest census made by the Ministry of Agriculture shows no tendency for yields to increase. The

Volume of Milk Output (1).

(Million gallons.)

	1930-31	1931-32	1932-33	1933-34	1934-35	1935-36	1936-37	1937-38
England and Wales	1,263	1,250	1,270	1,270	1,270	1,316	1,314	(a) 1570
Scotland	163	—	—	—	—	177	—	
Northern Ireland	97	100	102	103	104	104	...	

(1) Excluding milk fed to calves.

(a) Provisional estimate.

average annual yield of milk per cow (excluding milk fed to stock) was 539 gallons in 1931 but only 502 in 1936 (1); the weather conditions at the time of the 1931 census were, however, much more favourable to milk production than they were at the time of the 1936 census.

Number of Cattle.

(Thousands.)

	1931	1932	1933	1934	1935	1936	1937	1938
England and Wales (1):								
Cows and heifers in milk	2,043	2,117	2,179	2,214	2,232	2,227	2,217	2,219
Cows in calf	322	352	358	364	382	405	394	372
Heifers in calf	425	403	418	417	437	443	456	458
Total cattle	6,065	6,358	6,620	6,660	6,541	6,540	6,619	6,658
Scotland (1):								
Cows and heifers in milk	346	351	365	369	371	368	365	365
Cows in calf	52	53	53	55	56	56	56	55
Heifers in calf	56	61	66	72	71	71	74	78
Total cattle	1,209	1,233	1,294	1,313	1,318	1,313	1,290	1,308
Northern Ireland (2):								
Cows in milk and in calf	237	245	246	251	252	250	237	229
Heifers in calf	23	23	25	32	27	25	23	30
Total cattle	681	715	734	769	799	770	730	731

(1) On June 4 each year. — (2) On June 1 each year.

(1) On basis of number of cows and heifers in milk and cows in calf.

Milk is unique among the agricultural products of the United Kingdom by reason of its market position. It is by its nature protected from import competition, and in a country whose imports of agricultural produce exceed in value the national agricultural output, it is the only important foodstuff the home production of which covers the total consumption in the country. This latter fact greatly facilitates the organisation of market control by the producers' monopoly, and thus when the Government in 1931 provided for statutory sanction for such control, marketing schemes for milk were soon evolved.

Marketing schemes.

England and Wales. — The milk marketing scheme, England and Wales, approved by Parliament in 1933, established a Milk Marketing Board representing, and elected by, milk-producers. All sales of liquid milk, other than sales by producer-retailers, are now made through the Board which negotiates prices with purchasers on the basis of yearly contracts. When the Board and the representatives of the milk purchasers, the Central Milk Distributive Committee, fail to agree, prices are established in accordance with the judgement of independent persons appointed for the purpose by the Minister of Agriculture. Different prices are charged by the Board according to the use to which the milk is put, the main distinction being between milk sold for liquid consumption, and milk sold for the manufacture of dairy products, etc. No such difference is, however, made by the Board in the prices it pays to the producers. Before the introduction of the scheme the very low prices received for milk sold for manufacture had put producers selling in this market in a very difficult position, and milk from districts, such as the South West of England, where there was a relatively small market for liquid consumption, began to be diverted to the distant consumption centres. Under the scheme the receipts from the markets are equally shared between producers by means of a pooling system, which is, however, on a regional and not a national basis. In each of the eleven districts into which England and Wales is divided for the purpose, the returns from all sales of milk are pooled and shared between producers on a per gallon basis. The proposal that this pooling system should be on a national basis met with strong objection from districts in which a relatively high proportion of the milk there produced is sold in the more profitable liquid market. A step towards a national equalisation of producers' returns was made by the institution of the Inter-regional Compensation Fund; a levy is made on every gallon of milk sold in the liquid market and the proceeds are used to raise the prices paid by the Board to producers in districts where the proportion of milk sold for manufacture is high.

The *contract prices for the year October 1938 to September 1939* were fixed in September last by an agreement between the Board and the Central Milk Distributive Committee. The *wholesale* prices to be paid to the Board for milk for liquid consumption are, on the average, the same as those paid in 1937-38. Some of the monthly prices are, however, different from those of the last contract, changes having been made to give a greater uniformity throughout the year. The wholesale prices of milk for manufacture are also substantially the same; the prices of milk for butter and cheese manufacture are calculated from a formula based on the price of imported butter and cheese, and these formulae have been modified for 1938-39 in such a way as to give a slightly higher price. The contract also prescribes minimum *retail* prices which vary according to districts. These prices in 1938-39 are to be from $\frac{1}{3}d$ to $\frac{2}{3}d$ higher than last year. In all districts monthly prices have been modified to reduce the seasonal differences, and in south-eastern districts with a population exceed-

ing 25,000 there is now a uniform price of 2s. 4d. per gallon. The system of pooling returns introduced by the scheme led to the transfer of milk from the manufacture of butter and cheese on farms, to the Board. In order to check this the Board, in 1934, made arrangements the effect of which is that farmhouse cheesemakers receive a payment from the Board sufficient to cover the difference between the net value of milk sold off the farm and its value if turned into cheese on the farm. No similar scheme was introduced for butter by reason of the administrative difficulties involved; farmhouse cheese-makers were few in number, each producing large quantities, but the position was very different in the case of farm butter-making.

Rate of Farmhouse Cheese Grants ⁽¹⁾.

(Pence per gallon).

	1934-35	1935-36	1936-37	1937-38	1938-39
October 1 to April 30	4 $\frac{3}{4}$	5 $\frac{1}{2}$	4 $\frac{1}{2}$	4 $\frac{1}{2}$	(a) 4 $\frac{3}{4}$
May 1 to September 30	4 $\frac{3}{4}$	4 $\frac{1}{2}$	3 $\frac{1}{2}$	3 $\frac{1}{2}$	(a) 3 $\frac{3}{4}$

(¹) Rate for hard cheese; rate for Caerphilly and soft cheese 1 $\frac{1}{2}$ d. less.

(a) Rate for cheese not reaching National Mark standard is $\frac{3}{4}$ d. less.

Beginning with the year 1937-38 the Board increased its control over the market by regulating the allocation of supplies among purchasers. Previously the purchaser had been free to use his supplies as he wished and this had been detrimental to the interest of the producers in that sometimes, and particularly in the winter of 1936, the markets yielding higher returns were relatively less well supplied than markets yielding lower returns. Thus when the 1937-38 contracts were issued they were accompanied by a letter directing the producer to his market. As part of the 1938-39 contract a plan has been adopted by which the buyers are grouped in three categories, according to the degree to which their businesses are concerned with the liquid and the manufacture market respectively, and the contracts allocated so as to give priority to those serving the more profitable liquid market.

Encouragement of the consumption of liquid milk in England and Wales has been given by the Board in various ways. In 1934 it started a Milk-in-Schools scheme by which milk was supplied at less than the normal retail price, the difference being in part sustained by the Board and in part covered by the subsidy paid by the Exchequer to the Board for publicity expenses (¹). In May 1935 a publicity campaign was started which in 1936 was directed especially to increasing the consumption of milk by workers in factories. The consumption under the Milk-in-Schools Scheme is about 23,000,000 gallons a year, while the Milk-in-Industry Campaign has increased

(¹) See page 178.

consumption by workers in factories from less than a 1,000,000 gallons a year when the scheme started, to about 3,500,000 at present.

The cost of these schemes not covered by the Exchequer grant, and of the grants to farmhouse cheese makers and the bonuses paid to producers of special quality milk—to which reference will be made later—and the administrative expenses of the Board, are deducted from the receipts of the Board from the sales of milk, before these receipts are distributed among producers.

Producer-retailers also contribute to the receipts of the Board. A levy is imposed on their sales—which are to the liquid market—representing a share of the cost of operating the scheme and of the burden of the manufacturing market ⁽¹⁾.

Milk Prices and Sales in the Area of the English Milk Marketing Scheme.

	1933-34	1934-35	1935-36	1936-37	1937-38
Average of retail prices realised for liquid milk. Pence per gallon.	24.83	26.08	26.21	26.21	27.48
Average of wholesale prices paid to the Board by distributors for "liquid" milk. Pence per gallon.	14.01	15.09	15.26	15.26	16.26
Average distributors' margin. Pence per gallon	10.82	10.99	10.95	10.95	11.22
Average price realised by the Board for milk for manufacture. Pence per gallon ⁽¹⁾	4.96	4.81	4.95	5.75	6.88
Average of regional "pool" prices paid by the Board to producers. Pence per gallon	11.83	11.99	11.48	11.99	12.92
Sales for liquid consumption through the Board. Thousand gallons	523,813	552,016	555,574	579,618	618,255
Sales for manufacture through the Board. Thousand gallons	192,624	301,689	342,445	289,185	287,121
Total sales through the Board. Thousand gallons	716,437	853,705	898,019	868,803	905,376
"Liquid" sales as percentage of total	73.11	64.66	61.87	66.71	68.28
Milk sold by producer-retailers. Thousand gallons	109,971	113,249	108,232	^(a) 104,000	—
Milk used for farmhouse cheese. Thousand gallons	18,846	14,005	17,716	19,623	23,796

⁽¹⁾ Excluding Government subsidy

^(a) Estimated.

Scotland. — There are three marketing schemes in operation in Scotland; by far the most important is the Scottish Milk Marketing Scheme which is an organization

⁽¹⁾ Compare the position in Scotland. See p. 175.

of all producers in Scotland south of the Grampians ⁽¹⁾. Here we shall be concerned only with this larger scheme.

The scheme is operated by a Board elected by registered milk producers. All sales of milk, whether to the liquid or manufacturing market, except milk of "Certified" quality ⁽²⁾ and milk sold by producer-retailers are made through the Board which pools all the receipts and pays the producers on a per gallon basis. All milk prices are based on a yearly contract between the Board and representatives of milk purchasers. The two parties have not in the past been able to agree on the prices and terms to be fixed by the contract and the matter has therefore had to be referred to an arbitrator.

The contract prices for the year October 1938 to September 1939 were fixed on the basis of the arbitrator's recommendation. The average for the year of the *wholesale* prices to be paid to the Board for milk for liquid consumption, is 15 $\frac{1}{12}$ d. per gallon, a little more than $\frac{1}{3}$ d. per gallon higher than last year. The yearly average of the *retail* prices for milk for liquid consumption is 25 $\frac{1}{3}$ d. per gallon which is also $\frac{1}{3}$ d. per gallon higher than last year; this increase is solely in the month of October. Thus the yearly average *distributors' margin* which had been increased in 1937-38 by $\frac{1}{4}$ d. per gallon remains the same.

Special prices are established for "Certified" milk, which is not sold through the Board and for "Tuberculin Tested" milk, which is, since 1937, sold through the Board. The yearly average of the *retail* prices of "Certified" milk is 33 $\frac{1}{3}$ d. per gallon; the difference between this and the price for ordinary milk is the same as it was last year. The average of the *wholesale* prices to be paid to producers for this milk is 24 $\frac{7}{12}$ d., and the difference between this and the wholesale price for ordinary milk is slightly less than it was last year. "Tuberculin Tested" milk yields 4d. per gallon more to the retailer and 2 $\frac{1}{2}$ d. more to the Board than ordinary milk. ⁽³⁾

As under the English scheme, farmhouse cheesemakers in the area covered by the main Scottish scheme, receive special bonuses from the Board. Efforts are also being made here to increase milk consumption by a Milk-in-Schools Scheme, and by publicity. Part of the cost of these efforts is met out of the Government subsidy ⁽⁴⁾ and the rest represents a charge on the Board's receipts from sales.

As under the English scheme producer-retailers make contributions to the funds of the Board; and so also do producers of "Certified" Milk who do not sell through the Board. Until 1937 these contributions were on a similar basis to that in England. As a result of an action brought by a farmer which led to a court decision that the Board was not entitled to claim from these producers contributions to the burden of the manufacturing market, the basis was however changed and now the contributions represent a share of the cost of operating the scheme, and of the quality premiums ⁽⁵⁾ only ⁽⁶⁾.

⁽¹⁾ The other schemes are: Aberdeen and District Milk Marketing Scheme concerned with sales of about 9,000,000 gallons a year, and the North of Scotland Milk Marketing Scheme, with sales of a little over 2,000,000 gallon per year. The sales of the Scottish Milk Marketing Scheme are at present over 120,000,000 gallons a year.

⁽²⁾ See page 180.

⁽³⁾ See page 180 for difference in return to producer.

⁽⁴⁾ See page 178.

⁽⁵⁾ Since 1938.

⁽⁶⁾ The rate is now 1 $\frac{3}{4}$ d. per gallon.

Milk Prices and Sales in the Area of the Scottish Milk Marketing Scheme.

	1933-34 (a)	1934-35	1935-36	1936-37	1937-38	1938-39
Retail price for liquid milk ⁽¹⁾ . Pence per gallon	24.00	24.00 (b)	23.33	24.00	25.00	25.33
Wholesale prices for liquid milk ⁽¹⁾ . Pence per gallon	14.00	14.00	14.00	14.16	14.75	15.08
Average price paid by Board to producer ⁽²⁾ . Pence per gallon	10.62	10.88	10.83	11.06	11.79	—
Liquid sales through Board. Thousand gallons	40,469	53,947	55,180	57,535	60,236	—
Milk for manufacture sold through Board. Thousand gallons	24,944	35,320	41,199	37,782	38,539	—
Total sales through Board ⁽³⁾ . Thousand gallons	65,413	89,267	96,379	95,317	98,775	—
Liquid sales as percentage of total . .	61.87	60.37	57.26	60.18	60.98	—
Used for farmhouse cheese. Thousand gallons	9,700	9,294	8,226	7,345	6,212	—
Liquid sales by "category producers" ⁽³⁾ . Thousand gallons	16,897	16,956	17,425	17,764	17,365	—
Total of all sales. Thousand gallons ⁽⁴⁾	92,010	115,517	122,030	120,426	122,352	—

(a) December 1, 1933 (when scheme came into force) to September 30, 1934; figures for 10 months only.

(b) Retail prices fixed by contract; in this year most retailers did not observe the contracts and charged 24d. throughout the year.

(1) Yearly unweighted average of monthly prices fixed by the Board.

(2) Yearly unweighted average of monthly prices paid by Board.

(3) Producers of Certified milk and producer-retailers.

(4) Total of monthly figures.

Northern Ireland. — The position in Northern Ireland is very different from that in Great Britain; whereas almost 70 per cent. of the milk produced in Great Britain is sold for liquid consumption, only about 30 per cent. of the production in Northern Ireland goes to the "liquid" market. A marketing scheme was introduced in Northern Ireland by the Milk and Milk Products Act (Northern Ireland) in June 1934. This differs fundamentally from the English and Scottish schemes. There is no producers' marketing monopoly, but instead a Joint Milk Council consisting of 3 representatives of the Ministry of Agriculture, 3 representatives of consumers appointed by the Minister of Home Affairs, 7 members elected by producers and 4 members elected by distributors. This Council fixes retail and wholesale prices for milk for liquid consumption. There is no collective marketing and pooling of receipts. Instead there is provision for

"equalisation payments" to be made to producers of milk for manufacture, in order to bring the prices realised up to a guaranteed minimum; the funds for the purpose are obtained from a levy on sales of liquid milk for liquid consumption and on sales of butter and margarine, and from any sums paid by the Exchequer of the United Kingdom to assist the milk industry in Northern Ireland. Milk for the liquid and manufacturing markets is separated on a quality basis; four grades are established and the lower grade, D, may not be sold for liquid consumption.

Wholesale prices for milk for liquid consumption for the period October 1, 1938-September 30 1938, are the same as in 1937-38. They are 1s. 3d. per gallon from October 1 to April 30, and 1s. 1d. from May 1 to September 30; these are the prices for Grades B and C, those for Grade A are 2d. higher. Retail prices which vary not only according to quality but also according to district have been increased by extending the higher winter prices for an additional three months and so shortening the summer period to the months of June and July; the highest prices, to rule in the large towns of Belfast and Londonderry and elsewhere, are:— from October 1 to May 31, 2s. 2d. per gallon for Grade A, 2s. Grade B, 1s. 10d. Grade C, and from June 1 to July 31, 2s., 1s. 10d. and 1s. 8d. respectively. The distributors margin will be about $\frac{1}{2}$ d per gallon higher in 1938-39.

The price guaranteed to producers of milk sold for manufacture — mainly to creameries — is 5d. per gallon in the summer months April to September and 6½ d. in the winter months. If the milk so sold is Grade A, B or C the producer receives a bonus of 2d. per gallon from the Milk Fund.

Milk sold to Creameries for Manufacture — Northern Ireland

	1934-35	1935-36	1936-37	1937-38
Quantity. Thousand gallons	18,761	24,433	25,673	23,391
Average prices paid by creameries. Pence per gallon.	3.18	3.99	4.38	5.12
Average amount of Equalisation Payments: Pence per gallon	2.15	1.35	0.90	0.35
Receipts from milk supplied to creameries:—	£	£	£	£
Paid by creameries	256,548	413,415	476,420	499,434
Equalisations payments	168,105	135,378	96,199	34,405
Quality bonus.	1,501	24,256	37,235	48,230
Total	426,154	573,049	609,854	582,069

The amount of milk converted into butter on farms is estimated at about 28,000,000 gallons; thus the total quantity of milk used for manufacture of butter is between 50,000,000 and 55,000,000 gallons. Liquid consumption is estimated at about 30,000,000

gallons, and about half of this probably is consumed on farms. The contract prices fixed for liquid milk relate therefore to only a small percentage of the total milk output.

Prices fixed for Milk Liquid Consumption - Northern Ireland.

	1934-35	1935-36	1936-37	1937-38	1938-39
Average Retail prices. Pence per gallon ⁽¹⁾ ⁽²⁾	(a) 22.20	22.00	22.50	23.16	23.66
Average wholesale prices paid to producers. Pence per gallon ⁽³⁾	(a) 12.75	12.00	12.50	14.16	14.16

⁽¹⁾ Category I area — the large towns and certain urban districts; prices in Category II areas were 2d. less, in Category III areas 4d. less.

⁽²⁾ Grade B milk (into which about 60 per cent. of the milk sold for liquid consumption falls). Grade C prices were 2d. less, Grade A, 2d. more.

⁽³⁾ Grades B and C; Grade A 2d. more.

(a) For 10 months December, 16 — September 30.

Government subsidies to the milk industry.

The Milk Acts, 1934-37 provide for payments from the Exchequer to the Milk Marketing Boards in England and Wales and in Scotland and to the Government of Northern Ireland. The payments have the purposes, first, of guaranteeing to the wholesale sellers of milk minimum prices for milk for manufacture⁽¹⁾; second, of giving financial assistance to schemes for increasing the demand for milk ⁽²⁾; and third, of financing a scheme for the improvement of the quality of milk ⁽³⁾. It is to be noted that payments made to guarantee minimum prices for milk for manufacture were to be gradually repaid to the Exchequer when the prices of such milk rose above the guaranteed minimum.

⁽¹⁾ About £ 3,000,000 was paid by the Exchequer on this account during the period 1934-35 to 1937-38.

⁽²⁾ The Act provided £ 1,000,000 to be spent over two years; a further £ 500,000 was made available in each of the two years 1936-37 and an Amendment Act of 1938 provided £ 750,000 for 1938-39.

⁽³⁾ The Act provided £ 750,000 to be spent over 4 years. The relevant section of the Milk Act was repealed and replaced by a section of the Agriculture Act 1937, which provided for the payment from the Exchequer of a bonus of 1 d. per gallon on milk from herds free from tuberculosis.

The provisions of these Acts expired on September 30, 1938 and as there was no prospect of the Government's proposals for a long-term measure being put into legislative effect before that date, a Milk (Extension and Amendment) Act was passed in July 1938. This extended till September 30, 1939 the provisions of existing Acts and made the following amendments to them.

First, the Milk Marketing Boards are released from all liability accruing after September 30, 1937, to repay to the Exchequer advances made in respect of milk for manufacture.

Second, the provisions of existing Acts, are enlarged to allow the development of the existing schemes for the provision of cheap milk to school children and children under school age and to expectant and nursing mothers, and for this purpose the Exchequer is to provide during the year £ 750,000, *i. e.* 50 per cent. more than the £ 500,000 hitherto made available annually.

Quality premiums.

The efforts made in recent years in the United Kingdom to encourage the improvement of the quality of the milk output, by means of various quality premiums paid by the Milk Marketing Boards and by the Exchequer, have been intensified recently.

Before the introduction of the milk marketing schemes there was in force an officially controlled system of special designations set up by the Milk (Special Designations) Order, 1923 ⁽¹⁾; this gave five grades of milk and many buyers were prepared to pay a higher price for milk of a higher grade.

New direct incentives to the improvement of the quality of milk produced were introduced in 1935. First, the Milk Marketing Board for England and Wales began to compile a roll of Accredited Producers; this is a roll of producers whose production came up to certain standards approximately the same as the Grade A standard set up in 1923 ⁽¹⁾—the cows have to be submitted to a veterinary examination at intervals of not more than six months, the milk has to comply with certain bacteriological standards, and the methods of production have to be approved by county authorities—; Accredited producers were given the right to a bonus of 1*d.* per gallon, paid out of the funds of the Board, on all milk they sold through the Board. Second, the Minister of Agriculture began an Attested Herds Scheme ⁽²⁾; producers whose herds showed no reactors to an official tuberculin test repeated at six-monthly intervals became entitled to a bonus of 1*d.* per gallon, paid by the Exchequer ⁽³⁾, on milk sold for liquid consumption. The conditions of the test and the regulations which the holders of an Attested Herd certificate have to follow are more severe than those of the Accredited scheme. The Attested Herd bonus is payable in addition to any bonus the producer might receive under the Marketing Board's Accredited Scheme ⁽⁴⁾.

⁽¹⁾ See the September 1938 number of this Chronicle p. 440.

⁽²⁾ This scheme is in operation in England and Wales and Scotland.

⁽³⁾ In accordance with the Milk Act, 1934 and later the Agriculture Act, 1937; see page 178.

⁽⁴⁾ The output of Accredited milk was 280,024,000 gallons in 1935-36, 336,610,000 in 1936-37 and 376,585,000 in 1937-38. The output of milk in England and Wales from Attested Herds was in November 1938 2,000,000 gallons, which is times that in November 1937.

The producers of milk of the two highest grades set up by the 1923 Order, that is "Certified" and "Grade A Tuberculin Tested", were until 1937 exempt from the marketing schemes; they sold their milk independently and not through the Boards, receiving in general higher prices than those paid for lower grade milk sold through the Board. In 1937 the position was changed.

In the meantime the special designation regulations had been modified. Orders made in 1936 established three special grades for England and Wales—"Tuberculin Tested", "Accredited" and "Pasteurised"—and four grades for Scotland—"Certified", "Tuberculin Tested", "Standard" and "Pasteurised". Licences to produce "Tuberculin Tested" milk are granted to a producer on condition first, that official tests repeated at six-monthly intervals show his herd to be free from tuberculin reactors—a test similar to that required by the Attested Herds Scheme—and second, that the milk produced passes certain bacteriological tests—the form of the test in Scotland is different from that in England and Wales. The conditions for the production of Certified milk in Scotland are similar, but the bacteriological test is more severe and certified milk has to be bottled on the premises where it was produced, immediately after production and cooling, whereas T. T. milk may be transported to other premises for bottling. Herds from which Accredited milk, in England, and Standard milk in Scotland, are produced, have to be submitted to a veterinary examination—similar to that required by the Accredited Producer scheme—at intervals of 3-5 months and to be shown to be free from diseases likely to affect the milk injuriously; this examination does not include the official tuberculin test. The milk produced has to pass a bacteriological test; in Scotland the standard required for Standard milk is the same as that for T. T. milk; in England and Wales, where the test is on a different basis, the standard for Accredited milk is lower than that for T. T. milk.

Quality Premiums Paid by the Milk Marketing Board, England and Wales.

	Before October 1938		After October 1938	
	Total	Government contribution	Total	Government contribution
Accredited Milk	1	—	1 ¼	¾
Tuberculin Tested Milk	2	—	2 ¼	1 ¼
Milk from Attested Herds	1	1	2	1 ½
Accredited Milk for Attested Herds	2	1	3 ¼	2 ¼
Tuberculin Tested Milk from Attested Herds .	3	1	3 ¼	2 ¼

In 1937 producers of T. T. milk were brought within the marketing schemes in England and Wales and in Scotland; they acquired the same benefits and liabilities as

other producers in the scheme had. They became entitled to a bonus of 2d. per gallon payable out of the funds of the Boards, on their wholesale sales, which are now made through the Board.

In the summer of 1938 the Attested Herds scheme was extended ⁽¹⁾.

Quality Premiums Paid by Scottish Milk Marketing Board.

Pence per gallon.

	Before October 1938		After October 1938	
	Total	Government contribution	Total	Government contribution
(a) Sales to or through the Board				
Standard Milk	—	—	1 1/4	3/4
Tuberculin Tested Milk	2	—	2 1/4	1 1/4
Milk from Attested Herds	1	(a) 1	2	(a) 1 1/2
Standard or Tuberculin Tested Milk from Attested Herds	3	(a) 1	3 1/4	(a) 2 1/4
(a) Sales other than to or through the Board by producers-retailers and other producer-distributors.				
Standard Milk	—	—	1	5/8
Tuberculin Tested Milk . . . . .	...	—	1 1/4	3/4
Certified Milk . . . . .	...	—	1 3/8	3/4
Milk from Attested Herds . . . . .	...	(a) 1	1	(a) 1
Standard or Tuberculin Tested Milk from Attested Herds . . . . .	...	(a) 1	2 1/4	(a) 1 3/4
Certified Milk from Attested Herds . . . . .	...	(a) 1	2 3/8	(a) 1 3/4

(a) Includes 1d provided for by the Government's Attested Herds scheme.

Now, for the present contract year, which began in October 1938 a new scale of quality premiums has been established. The rates payable in England and Wales have been increased, and in Scotland rates are increased and new premiums introduced.

⁽¹⁾ See the September 1938 number of this Chronicle p. 439-440.

These increased premiums are based on the Government proposals for a long-term milk act; the Government announced that if the Milk Marketing Boards decided to pay quality premiums on scales corresponding to that set out in the published proposals the Government would commend to Parliament that provision should be made in the proposed Milk Industry Bill authorising payment retrospectively to October, 1938 of Exchequer contributions towards the cost of the premiums ⁽¹⁾.

⁽¹⁾ A Milk Industry Bill was introduced at the end of 1938 but was withdrawn in face of strong opposition particularly from the English Milk Marketing Board. The Board objected to the control of the milk industry by a proposed non-representative milk commission and found that the proposed prices to be guaranteed for milk for manufacture were much too low. The Government are at present reconsidering the position.

Dott. VALENTINO DORE, *gerente responsabile*.

MONTHLY BULLETIN

OF

AGRICULTURAL ECONOMICS AND SOCIOLOGY

TRADE RELATIONS OF THE U. S. S. R. WITH WORLD AGRICULTURAL MARKETS

SUMMARY: — *Export trade in wheat*: — 1. Situation before the War. — 2. Exports in relation to output of wheat in Russia. — 3. Exports of wheat from Russia in relation to exports from the principal wheat exporting countries. — 4. Effects of the urbanisation of Russia on the home demand for wheat. — 5. Comparison of changes in the output of wheat and demographic changes in the principal wheat-producing countries. — 6. Export markets for Russian wheat before and since the War. — 7. Increasing self-sufficiency of the wheat importing countries. — 8. The future of Russian wheat exports. — *Export trade in flax* — *Export trade in butter*.

II. — International trade in agricultural products.

Export trade in wheat.

I. — *Situation before the War*. — Before the War, wheat played a very important part amongst Russia's agricultural exports, so that the large annual exports of this cereal combined with its excellent quality made Russia the "granary of Europe".

These exports represented as much as 14 per cent. of the total wheat output in the pre-War territories of Russia and 22 per cent. of the output of the territories within the present boundaries of Russia. However some doubts may well arise as to whether these immense exports formed a real surplus over the food requirements of the Russian people.

The following table shows the annual average wheat consumption per head in Russia compared with that in several other countries for the five-year period 1909-14.

TABLE IX. — *Consumption of Wheat in certain Countries.*
(Quintals per head).

Russia	0.89	Belgium	1.78
Romania	1.16	France	2.20
Hungary	1.19	United States	1.35
Serbia	1.25	Canada	1.41
United Kingdom	1.51	Australia	1.42
Italy	1.62	Argentina	2.28

(Appendix to the *International Wheat Situation*, issued by the Secretariat of the Wheat Advisory Committee. January 1938).

Thus the per capita consumption of wheat in Russia was substantially smaller than in overseas, as well as in European countries. The consumption of rye too, which is the staple cereal food in Russia, was lower than in many European countries where rye formed the main cereal food. The per capita consumption of rye in 1906-07 was 79.8 kg. in Russia, 143.0 kg. in Germany, 227.4 kg in Denmark, etc. In 1913-14, on the eve of the War, the corresponding figures were 120.4, 152.4 and 218.0 kg. respectively ⁽¹⁾.

Though these figures are only approximate, they are nevertheless very characteristic when considered over a number of years.

As said in Part I, a large part of the foreign loans had to be paid for with exports of cereals, which were the principal item in the balance of trade, representing 40 per cent. of total exports; for even the gold standard introduced at the end of the 19th century by Witte, the Minister of Finance, had to be protected against excessive fluctuations if it was to retain the confidence of the holders of Russian bonds. In this regard, therefore, considerations of social welfare tended to be subordinated to commercial requirements.

A comparison of present-day exports of wheat from Russia with pre-War exports is not altogether appropriate. For even before the War, in the so-called golden age of Russian wheat, exports of wheat from Russia were being affected by the pressure on the world market from overseas countries. This is clearly demonstrated in the following table, which gives the exports of wheat from the five principal exporting countries for the years from 1905 to 1913.

TABLE X. — *Exports of Wheat from the five principal Exporting Countries.* ⁽²⁾
(Thousands of quintals).

Year	Russia	Canada	United States	Australia	Argentina
1905	48,131	7,803	5,644	6,708	28,683
1906	36,036	10,379	17,106	8,236	22,480
1907	23,207	10,207	24,871	7,834	26,808
1908	14,710	14,289	25,251	4,090	36,363
1909	51,511	13,452	13,197	8,586	25,141
1910	61,360	12,635	6,602	12,999	18,836
1911	39,402	16,459	8,891	15,009	22,860
1912	26,376	23,122	16,780	8,873	26,291
1913	33,294	35,367	27,082	11,682	28,122

As is shown by these figures, in the period 1905-13 exports of wheat remained more or less constant only in Argentina, where, in fact, they even fell somewhat. Exports from Australia almost doubled, while those from Canada and the United

⁽¹⁾ International Yearbook of Agricultural Statistics, 1913-14. International Institute of Agriculture, 1915, p. 521-540.

⁽²⁾ Ibidem, pp. 252-253.

States increased fivefold. Over the same period, exports of wheat from Russia decreased year by year, except for 1909 and 1910, when harvests were exceptionally good, amounting respectively to 230,288,000 and 227,587,000 quintals, compared with 173,168,441 quintals in 1905. ⁽¹⁾

In 1905 exports from Canada had still barely reached a sixth of the Russian figure; but by 1913 they had overtaken those from Russia. Basing the index of Russian wheat exports on 1905 = 100, the index rose above 100 twice, in 1909 and 1910, when it was 107 and 127.5 respectively. In all the other years it was lower, reaching for the years 1911, 1912 and 1913 only 81.9, 54.9 and 69.2 respectively. Taking the average for the years 1909-13, however, Russia remained in absolute figures the greatest supplier of wheat in the world, though her position on the world market was being more and more contested.

2. - *Exports in relation to output of wheat in Russia* — The following table shows the quantities exported and the output of wheat in Russia during the last quarter of a century.

TABLE XI. — *Russian Exports of Wheat and Flour.*
(Thousands of quintals).

Calendar years	Output	Years (commercial season)	Exports	Percentage of exports to output
1909-1913 ⁽¹⁾ average.	206,025 (100)	1909-10 to 1913-14 average	44,689 (100)	21.69
1923-1927 " "	184,200 (89.41)	1923-24 to 1927-28 " "	4,500 (10.07)	2.40
1928-1932 " "	217,000 (105.33)	1928-29 to 1932-33 " "	10,900 (24.39)	5.02
1933-1937 " "	328,220 (159.31)	1933-34 to 1937-38 " "	6,100 (13.65)	1.85
1933	277,300	1933-34	9,400	3.39
1934	304,100	1934-35	500	0.17
1935	308,300	1935-36	7,800	2.53
1936	309,000	1936-37	1,200	0.39
1937	442,000	1937-38	11,700	2.64

⁽¹⁾ The figures for the pre-War period refer only to the territories within the present boundaries of the U. S. S. R.

⁽¹⁾ International Yearbook of Agricultural Statistics, 1913 and 1914. International Institute of Agriculture, Rome, 1915, p. 23.

This table shows how completely the position has changed as regards exports of wheat from Russia since the War. Taking the pre-War average 1909-13 = 100, the index number for exports of wheat during the NEP period 1923-24 to 1927-28 (grain again being exported from 1924) sank to 10.07. During the first Five Year Plan, 1928-32, it rose to 24.39, to fall again to 13.65 in the second Five Year Plan, 1933-37. The proportion between wheat exports and output fell from 21.7 per cent. to only 1.85 per cent. in 1933-37. Compared with the pre-War period, the output of Russian wheat increased during the first and second Five Year Plans while exports were falling off considerably.

3. - *Exports of wheat from Russia in relation to exports from the principal wheat-exporting countries.* — Table XII shows the general conditions on the world market and the movement of wheat exports from the U. S. S. R. compared with those from the other more important exporting countries for the periods 1909-13, 1923-27, 1928-32 and 1933-37.

An analysis of the various sources of supply of the world wheat market and of their altered relationships over the last twenty-five years is particularly instructive. The average contribution to the world market of Russian wheat over the five years 1909-10 to 1913-14 was 24.3 per cent., almost one quarter of the total world supply. Next, though at a considerable distance, came the United States and the Danubian countries (Bulgaria, Romania, Serbia and Hungary), each contributing about 16 per cent. Canada followed with 14 per cent.; Argentina with 12.4 per cent., while Australia supplied only 8 per cent. These countries were together responsible for about 91 per cent. of the wheat placed on the world market.

During the War Russia had only to supply her own needs, the world market remaining completely shut off. Meanwhile the overseas countries were steadily expanding their exports, and their increased importance for the world market became an established fact. This alteration in the relation between the different exporting countries underwent further change in subsequent years. Exports of wheat from the post-War U. S. S. R. territory diminished in the NEP period (1923-24 to 1927-28) to 12.08 per cent. of the pre-War level—much below that of the Danubian states whose exports fell only by two-thirds (to 32.33 per cent.) of the pre-War level. The percentage of Russian wheat exports to world exports fell to 2.5 per cent.

During the first Five Year Plan (1928-29 to 1932-33) exports of wheat from Russia more than doubled in comparison with exports in the NEP period. They still remained far below the pre-War level, however, amounting to only about a quarter of Russia's pre-War wheat exports. Russia's contribution to the world wheat market was 5.4 per cent, somewhat lower than the 6 per cent. supplied by the Danubian States. In the years 1933-34 to 1937-38 it fell to only 4.1 per cent.

Of the other countries, the United States increased her exports considerably, the export index rising to 157.57 for the period 1923-27, while her share of world wheat exports rose from 16.1 per cent. in 1909-13 to 21.9 per cent. in 1923-27. In the next two periods; however, as a result of the decline in the

TABLE XII. — *Exports of Wheat and Flour (1) from Russia and the other principal Wheat-Exporting Countries.*
(Thousands of quintals).

Average	Total world exports of wheat	U. S. S. R.		United States		Canada		Argentina		Australia		Danish States	
		Volume	% of world exports	Volume	% of world exports	Volume	% of world exports	Volume	% of world exports	Volume	% of world exports	Volume	% of world exports
1909-10-1913-14 . . .	184,300 (100)	44,700 (100)	24.3	29,700 (100)	16.1	25,800 (100)	14.0	22,000 (100)	12.1	14,900 (100)	8.1	30,000 (100)	16.3
1923-24-1927-28 . . .	213,300 (115.74)	54,400 (12.08)	2.5	46,800 (157.57)	21.9	79,800 (309.30)	37.4	38,600 (168.56)	18.1	24,000 (165.10)	11.5	9,700 (32.33)	4.5
1928-29-1932-33 . . .	207,600 (112.64)	11,200 (25.05)	5.4	29,600 (99.66)	14.3	72,000 (279.67)	34.7	41,800 (182.53)	20.1	33,800 (226.84)	16.3	12,400 (41.33)	6.0
1933-34-1937-38 . . .	147,500 (80.03)	6,100 (13.65)	4.1	7,900 (26.60)	5.4	48,000 (180.53)	33.2	34,300 (149.78)	23.3	27,900 (187.25)	18.9	12,100 (40.33)	8.2

(1) Flour reduced to grain on the basis of the coefficient: 1 quintal of flour = 1.33333 quintals of grain. International Yearbook of Agricultural Statistics.

output of wheat, the export index fell just below 100 and subsequently to only 26.6, whilst at the same time the U. S. A. share in world exports fell to 14.3 per cent. and then to 5.4 per cent., thus sinking to nearly as low a level as exports of Russian wheat during the same period.

Exports from Argentina showed increases in both the first two periods considered here, export indices being 168.56 and 182.53 respectively; in the last five years, however, the index number fell below 150. Meanwhile her share in world exports rose continually, from 12.4 per cent. in 1909-13 to 18.1 in 1923-28 to 20.1 in 1928-32 and to 23.3, or nearly a quarter of the world trade in 1933-37.

Australia shows the second largest increase with an export index of 165.10 in the first, 226.84 in the second and 187.25 in the third post-War period, the percentage share in world trade being respectively 11.5, 16.3 and 18.9 for the same periods.

Canada's export index rose above 309 for the years 1923-24 to 1927-28 and shows the largest increase; but after the crop failures of 1929 and 1931 and in 1936 and 1937 especially, the index fell to 279.07 and 189.53. Nevertheless Canada still remained the largest exporter of wheat, its share in world exports rising from 14 per cent. before the War to 37.4 per cent and falling to 33.2 per cent. in the last period. Thus Canada, which before the War had been the fourth largest exporter of wheat, coming after Russia, the Danubian states and the United States, now rose to first place on the world wheat market, previously held, as has been shown, by Russia, who after the War fell to the sixth and last place among the great wheat-exporting countries.

Thus after the War exports of wheat from Russia to the world market were intermittent and had to compete with the greatly increased surpluses of the other exporting countries. They were therefore unable seriously to influence the altered structure of the world wheat market.

4. - *Effect of the urbanization of Russia on the home demand for wheat.* — These changes in wheat exports reflect the present tendency towards stagnation in the international trade in wheat. Nevertheless, the fundamental causes of the decline in Russian exports are to be found in the economic conditions of Russia herself. The output of wheat, though it rose after 1925, lagged behind in comparison with the rate of increase of the urban population. For the number of town dwellers was increasing fairly rapidly, and the industrial and office workers, etc. had to rely mainly on the State for their supplies of food.

In 1937 34.7 per cent. of the total population of the U. S. S. R. consisted of workers and employers, 55.5 per cent. of *kolkhos* peasants and cooperative artisans, 5.6 of non-collective peasants and non-cooperative artisans, and 4.2 per cent. of students, soldiers, invalids and old-age pensioners etc. The changes in occupation resulting from alterations in the economic structure of the country were so great that the urban population rose from 25 million in 1913 to about 60 million in 1937. Thus the number of town-dwellers has more than doubled.

Under the new régime private enterprise was eliminated and every variety of economic activity increasingly concentrated in the hands of the State. The Central Government was therefore obliged, if the effectiveness of the general

economic plan was to be ensured, to try to eliminate as far as possible any disharmony between production and consumption of the various goods. The responsibility for the food supplies of the people lies on the planning committees, so that exports can not easily proceed unregulated. Before the War wheat exporting came within the scope of private enterprise, the rôle of the State being only indirect, but since then the conception of the rights and obligations of the State has changed radically.

5. — *Comparison of changes in the output of wheat and demographic changes in the principal wheat-producing countries.* — A comparison between the outputs of wheat of the chief producing countries shows that Russia's production has been larger absolutely than that of any other country both before and since the Revolution. The only exception to this was during the NEP period and the first Five Year Plan, when the average output of the United States was greater than that of the U. S. S. R. In general, Russia remains to-day, as it was before the War, the world's greatest producer of wheat. It must of course be remembered that her population in 1935 was about 168 million, whereas the populations of the United States, Argentina, Canada and Australia were respectively 127.2 million, 12.4 million, 10.9 million and 6.8 million — amounting in all to 157.3 million.

In the last 25 years the shares of the chief wheat-producing countries in the world output of wheat have undergone great changes. This is shown in Table XIII, which gives both relative and absolute figures for the pre-War and NEP periods and for the two Five Year Plans (1928-32 and 1933-37).

These figures show the changes that occurred in world wheat production and also in the output of each of the five most important producing countries in comparison with the world production of wheat. On the basis 1909-13 = 100 we find that the index for the volume of world production in 1928-32 had risen above 120, an increase of over a fifth.

Russian production has also increased, though more slowly than world production. The index number rose to 105.34 during the first Five Year Plan, an increase which was 14.46 per cent. less than the world increase.

During the same period the index number for wheat production in the United States rose to 125.29, thus exceeding the index number for the world output by 5 per cent.

The wheat indices for other countries also show big changes. Canada's output of wheat more than doubled in the twenty year period under consideration, the index for 1928-32 standing at 208.77, which is considerably higher than the world index. Argentina's output also increased very greatly, the index for 1928-32 having risen to 164. Finally, in the same period Australia's wheat index rose to 200, a doubling of her output.

Corresponding to the varying degrees of increase in wheat production in these countries, their shares in world output also changed somewhat. Russia's share fell about 2.4 per cent. below the pre-War figure. In the same period the United States share rose from 17.75 to 18.56, per cent., Canada's from 5.1 to 8.8, Argentina's from 3.78 to 5.18 and Australia's from 2.33 to 3.88.

TABLE XIII. — *Wheat Production in Russia and in the principal Wheat-producing Countries.*

(Thousands of quintals)

Years (average)	World wheat production	Russia /U. S. S. R.		United States		Canada		Argentina		Australia	
		Volume	% of world total	Volume	% of world total	Volume	% of world total	Volume	% of world total	Volume	% of world total
1909-13	1,058,000 (100)	206,000 (100)	19.47	187,800 (100)	17.75	53,000 (100)	5.07	40,000 (100)	3.78	21,000 (100)	2.33
1923-27	1,131,600 (106.95)	184,200 (89.42)	16.28	210,500 (115.28)	19.13	109,900 (205.04)	9.71	62,200 (155.50)	5.50	37,200 (151.22)	3.29
1928-32	1,267,500 (119.80)	217,000 (105.34)	17.12	235,300 (125.29)	18.56	111,900 (208.77)	8.83	65,000 (164.00)	5.18	49,200 (200.00)	3.88
1933-37	1,318,320 (124.60)	328,220 (159.33)	24.90	174,600 (92.97)	13.24	67,400 (125.00)	5.11	60,000 (150.00)	4.55	43,200 (175.61)	3.28

These fluctuations in the output of wheat between the years 1909-13 and 1928-32 are of special interest, because they show how the trends of population and of the output of wheat in these countries have diverged from one another.

In contrast to the countries showing the largest increases in their output of wheat, the U. S. S. R., whose share in world production fell from 19.5 to 17.1 per cent. between the two periods in question, has a very high coefficient of increase of population. According to Dr. R. R. Kuczynski the net reproduction rate, which is the most exact method of expressing the balance of births and deaths, is "enormous and hardly lower than it ever was, since mortality probably has decreased about as much as fertility". Together with Japan, the U. S. S. R. with a net reproduction rate of 1.4 shows the highest coefficient of increase of population of any country. In the United States and Argentina the net reproduction rate lies between 0.8 and 1.0, in Canada between 1.2 and 1.4⁽¹⁾ whilst in Australia it is 0.96⁽²⁾. Thus despite the fact that these countries tend to augment their populations by immigration from abroad, their net reproduction rates are below that of the U. S. S. R.

Though such comparisons cannot be made with absolute precision they do show the general trend, which is of the utmost significance for our present argument.

This marked tendency of wheat production in the principal wheat-exporting countries to increase relatively to the trend of population was not apparent during the period of the second Five Year Plan. This was due to the United States wheat output in the four year period 1933-36 having been exceptionally low on account of the unusually unfavourable natural conditions. Not only was it lower than the average American output for the five years 1923-27, but it was also below the 1909-13 figure, being only 93 per cent. of the pre-War volume of production. This abnormal fall in the United States output of wheat led to a substantial reduction in exports during 1933 and 1934, and in 1935 and 1936 even caused the United States to import 16.6 million quintals of wheat—a phenomenon the like of which has not occurred throughout the recent history of the country.

As a result of drought Canadian harvests throughout these five years were also very seriously affected. Thus the largest crop in the five years 1933-37, that of 1933, was only 76 million quintals. This is lower than the smallest crop for the five years 1928-32, which occurred in 1929 and amounted to 83 million quintals. The index number for wheat output fell from 208.77 in the first five years to 125 in the second period.

At the same time, however, in Russia natural conditions combined with the improvements in the utilisation of labour so as almost to make certain for each year of the second Five Year Plan, (1933-37) of harvests which were

(1) *The Population Problem* by T. H. MARSHALL, Prof. A. M. CARR-SAUNDERS, H. D. HENDERSON, R. R. KUCZYNSKI, Professor ARNOLD PLANT. London, 1938, p. 113-115.

(2) *Population and Social Problems. International Labour Review*, I.L.O. Geneva, March 1939, p. 302.

exceptionally good—much larger indeed than previously, either before or after the War. Russia's share in the world output of wheat in 1933-37 was therefore very high, 25.5 per cent., and the production index jumped to 159.3. But although these changes in wheat production in the years 1933-37 are very important in themselves, they scarcely affect the general picture of the trend of world wheat production in the principal producing countries since the War, considered from the point of view of demographic changes.

The low net reproduction rate, and the large harvests of wheat in the most important overseas producing countries which accompanied it, are amongst the characteristic tendencies of the War and post-War years, which are reflected by the altered importance of various countries for the world wheat market. The margin between the volume of exports and internal requirements in these countries is much broader than in the Soviet Union, so that a decrease only effects them indirectly, through the balance of trade.

In the U. S. S. R. on the other hand the rate of increase of wheat production has been lower and the net reproduction rate higher than in the overseas countries. In contrast to the other countries, therefore, the problem of increasing the output of wheat is not primarily one of commercial policy and the need to export, but, for the immediate future at least, mainly a matter of securing an adequate food supply to the population at home—especially when it is recalled that the per capita consumption of wheat in the U. S. S. R. has risen from 0.89 quintals for the five year average 1909-14 to 1.11 quintals for the five year average 1932-37.

During the same period the per capita consumption of wheat in the overseas countries has, for various reasons, fallen off, in Argentina from 2.80 to 2.10 quintals, in Australia from 1.42 to 1.33 quintals, in Canada from 1.41 to 1.09 quintals, and in the United States from 1.35 to 0.99 quintals.

The total quantity of wheat used in Russia for human nourishment increased from 119 million quintals for the average of the years 1909-14 to 189 million quintals for the average of the years 1932-37—a rise of almost 60 per cent. (1).

This probably also accounts for the Soviet Union's not undertaking any engagement with the London International Wheat Agreement of 1933 to restrict her production of wheat.

From 1909-13 to 1932-36 the population of Russia increased from an average of 134 million to 169.3 million, giving an index for the latter period (1909-13 = 100) of 126.41. If, therefore, we allow for this increase in population and take as normal the pre-War proportion of exports to output of 22 per cent. (actually it was 21.69 per cent.), then theoretically, with a total output of 328 million quintals, exports for the average of the years 1933-37 should have been 52.8 million quintals or 17.2 per cent. (2) of output, as against the actual figure of 1.85 per cent.

(1) Appendix to the *International Wheat Situation*, issued by the Secretariat of the Wheat Advisory Committee, January 1938.

(2) $\frac{44.7 \times 100 \times 328}{206 \times 126.4} = 52.8$ million quintals, or 17.2 per cent. of the output of wheat (328 million quintals).

Russia could have gained entry to the world market by price cutting as she did in 1936, when she endeavoured, in order to obtain exchange for payment for the necessary imports of machinery, to market wheat from the abundant crop of that year at low prices. What was then an economic necessity, however, would have been during the second Plan, 1933-37, a luxury and indeed an economic absurdity. For not only had her demand for industrial goods from abroad fallen off, but wheat prices were chronically bad, being not only below the pre-War level, but below the average price for 1928-32 too. Thus for the U. S. S. R. price dumping is a two-edged weapon and its effect most problematical.

Russian exports of wheat, which at first sight appear to involve only a special problem, are thus seen to be of general interest, and to lead to important questions of principle relating to world economic organization.

6. - *Export markets for Russian wheat before and since the War.* — Table XIV. shows the principal markets to which Russian wheat was exported before the War, giving relative figures for the quantities exported for each year from 1905, until the War ⁽¹⁾.

As can be seen from the table, before the War Holland, Italy and the United Kingdom were the largest importers of wheat from Russia. Holland took almost a fifth, and sometimes more, of the Russian output, but a considerable part of this only entered Holland in transit awaiting re-export. In Italy Russia's hard wheat was very popular, especially for the production of macaroni, and had gained great renown, so that in 1905 Italy took over a fifth of total Russian exports of wheat and in 1913 this percentage rose to almost a third. Together, Italy and Holland imported over a half (52.5 per cent.) of Russian exports of wheat.

The United Kingdom came third, taking a quarter of the exports in 1905, though this figure had fallen to a tenth in 1913, her imports from Canada, the United States and Australia having substantially increased during this period. France held fourth place, importing respectively 9.4 and 15 per cent. of the Russian exports in these two years. Imports of Russian wheat into Germany before the War remained for the most part fairly stable, amounting to 6.15 per cent. in 1905 and 5.8 per cent. in 1913. After this came the less important markets of Spain, Greece, Belgium, Sweden, etc.

In recent years the destination of Russian exports has undergone a very considerable change, as Table XV shows. The most important market for Russian wheat is now the United Kingdom, which took more than a third (35 per cent.) in 1930 and more than a half (52.4 per cent.) in 1935 of all Russian exports of wheat. Italy was until recently one of the most important markets and in this period came second only to the United Kingdom. In 1930 she took 14 per cent. and in 1934 15.4 per cent. of the Russian wheat exports. In 1935 and 1936, however, the wheat trade between these two countries fell off almost completely. In the meantime the Greek market had greatly increased its importance,

(1) From the International Yearbook of Agricultural Statistics, 1915, p. 194.

imports rising from 2.3 in 1930 to 51.5 per cent. in 1936. In 1930 Germany imported 14.3 per cent., almost as much as Italy, and in 1934 the figure rose to 15.8 per cent. In 1935 however imports fell to 0.02 per cent., and were reduced practically to zero in 1936.

Belgium, on the other hand, has greatly increased her importance as a market for Russian wheat, taking 15.6 per cent. in 1936. The Netherlands also imported the very considerable quantity of 6.5 per cent. in 1935. Certain new markets for Russian wheat have also made their appearance, such as Norway, Finland, Estonia, etc.

France has lost much of the importance she had before the War as an importer of Russian wheat and, incidentally, not of Russian wheat alone. In 1935 she took only 1 per cent. of the total exports of wheat from Russia. French imports of wheat fell from an average of 12.8 million quintals in 1928-29 to 1932-33 to only 1.7 million quintals from 1933-34 to 1937-38. Indeed, in 1934, after a series of good harvests, France herself exported some 4.8 million quintals.

Thus not only has the volume of Russian exports of wheat greatly altered in comparison with the pre-War period, but the importing countries themselves have altered their importance as importers of wheat.

7. - *Increasing self-sufficiency of the wheat-importing countries.* — The position of Russian, as of world exports of wheat in general, has been greatly affected by the policies of those countries which formerly took their additional wheat requirements from the world market, but which now attempt as far as possible to satisfy their needs by expanding home production.

According to investigations by the International Institute of Agriculture, the following are the declines in the percentages of wheat imported to total supplies of wheat in the consuming countries:— In the United Kingdom and Ireland from 80.3 per cent. for the average of the years 1923-24 to 1927-28, to 76.4 per cent. for 1933-34 to 1937-38; for the same years in France from 14.4 per cent. to 2 per cent; in Italy from 27.5 per cent. in 1923-24 to 1927-28 to 6.3 in the second period given; for Germany and Austria from 42.4 per cent. to 11.3 per cent. for the same period; and in the Netherlands, from 84.3 to 59.0 per cent. for the same period ⁽¹⁾.

By increasing their own output, the importing countries made themselves more and more self-sufficient; foreign wheat was admitted only in greatly reduced quantities as a result of far-reaching measures of restriction such as high tariffs, import quotas for foreign wheat, subsidies to encourage the milling of domestic grain, etc.

Other factors, such as the trade and tariff policies of many of the exporting countries, monetary problems, etc. have also had their effect.

Since the War, each country, instead of letting its economic organization assume the form most adapted to its natural and technical conditions and its geographical position, in accordance with the rational principles of the internat-

(1) The World Wheat Situation in 1938-39. Rome, 1939, p. 38.

TABLE XV. — *Exports of Wheat*
(Metric tons and

Country of destination	1930		1931		1932	
United Kingdom	887,134	35.05	1,768,273	70.76	220,056	39.94
Belgium	44,484	1.76	4,748	0.19	10,575	1.92
Germany	362,305	14.32	79,245	3.17	3,725	0.68
Netherlands	32,084	1.27	47,640	1.91	52,363	9.50
Greece	58,545	2.31	107,180	4.29	139,663	25.35
Denmark	17,549	0.70	17,794	0.71	—	—
Italy	353,465	13.97	194,582	7.79	73,416	13.33
Spain	—	—	—	—	—	—
Norway	12,680	0.50	9,157	0.37	4,160	0.75
France	65,764	2.60	2,894	0.11	8,615	1.56
Finland	—	—	3,985	0.16	3,356	0.61
Other countries	(2) 696,925	27.48	(3) 263,460	10.54	(4) 34,988	6.36
<i>Total</i>	2,530,935	100	2,498,958	100	550,917	100

(1) Information regarding the wheat exports of these countries in 1937 has not been issued to date. —

(2) Including 153,182 metric tons to other British Possessions. — (4) Including 14,117 metric tons to Romania.

ional division of labour, has been preparing itself for exceptional times of crisis. Increasing numbers of "Isolated States" have appeared, uniform in their economic life and showing less and less cohesion between one another.

Between countries regulated in this way and to roughly the same extent, trade, and not less the wheat trade becomes much more difficult.

S. — *The future of Russian wheat exports.* — There can of course be no precise estimate as to what the future of Russian exports of wheat will be. Of one thing, however, there can be no doubt. The requisite agrarian and economic conditions for a further expansion of wheat production in the U. S. S. R. are largely in being. Although the area under wheat is now greater by a third than the pre-War area there remain large tracts of land which have not yet been brought under the plough. At present wheat production is extending from the areas of surplus output towards the north and east where its production is inadequate for the requirements of the areas. In future, therefore, these areas, which include the Volga area, South-West Siberia, the Omsk region and the Far-Eastern territories of the U. S. S. R. will be able to cover their needs with their own

from the U. S. S. R. in 1930-36.

per cent.) (1).

1933		1934		1935		1936	
371,984	49.71	38,101	17.99	376,572	52.35	—	—
88,650	11.85	12,934	6.11	115,179	16.01	9,045	15.61
19,900	2.66	33,501	15.82	175	0.02	—	—
69,599	9.30	7,222	3.41	46,648	6.48	—	—
97,187	12.99	24,280	11.47	114,992	15.98	29,815	51.46
1,133	0.15	3,230	1.53	—	—	—	—
45,900	6.13	32,690	15.44	—	—	—	—
—	—	—	—	—	—	10,162	17.54
15,770	2.11	37,247	17.59	25,503	3.55	5,497	9.49
2,539	0.34	10,265	4.85	7,553	1.05	—	—
6,772	0.91	2,627	1.24	1,435	0.20	1,016	1.75
28,814	3.85	9,669	4.56	31,293	4.35	2,400	4.15
748,248	100	211,766	100	719,350	100	57,935	100

(2) Including 425,411 metric tons to Gibraltar and 208,864 metric tons to other British Possessions. —

output. Nevertheless, compared with the pre-War position the percentage area under wheat, and cereals in general, has fallen relatively; for the area under industrial crops such as cotton, sugarbeet, flax, etc., has been greatly extended.

There is also still room for a large increase in the yield of wheat per hectare, although in this respect there has been some improvement in recent years. The average yield for the years 1909-13 was 6.9 quintals per hectare, while by 1926-30 the figure had risen to 7.5, and in the year 1937 to 10.7 quintals per hectare. This figure is still, however, much below the yield per hectare obtained by the intensive agriculture of the importing countries. In 1937 Denmark, for example, harvested 28.5 quintals per hectare, Holland 27.3, Belgium 24.6, the United Kingdom 20.6, Switzerland 23.3, etc. In the overseas wheat producing countries too, the yield is somewhat greater than in Russia.

Much is being done in the U. S. S. R. to increase the yield of wheat; by a more efficient use of labour, by more extensive application of fertilizers, by measures against drought, especially in the trans-Volgan wheat area, by the improvement of the seed, and also by employing Lyssenko's method of vernalization for the pre-treatment of seed (*yarovizatsia*). By this method grain cereals are

made less dependent upon climatic conditions by speeding up the process of ripening. As a result, wheat can be successfully grown in northern parts.

The expansion of production, however, is only one aspect of the problem of the future of wheat exports. Other factors which must be considered are: the rate of increase of population in the U. S. S. R., the development of the internal market, and last but not least, the position of the international wheat market in the immediate future. At present these are all imponderables, which though referred to here are not open to scientific analysis.

Export trade in flax.

The U. S. S. R. is also the largest producer of flax; indeed its importance as a producer of flax is much greater than as a producer of wheat.

Both climatic and soil conditions in the U. S. S. R. are suitable for the cultivation of flax. The most important areas for its cultivation are the Kalinin district, the Western Region, the districts of Yaroslav, Leningrad and Kirov, and the White Russian Republic. Together these areas account for about 75 per cent. of the fibre produced in the U. S. S. R.

In contrast to cotton, for example, the flax fibre must undergo a long and costly process for manufacture into yarn, for it must first be obtained from the stalk. A large supply of labour is therefore required, but the U. S. S. R. is favoured in this too, as there is no lack of labour.

The area under the long staple flax *Dolgunetz*, which is grown mainly for its fibre, as contrasted with the *Coudrjache* which is cultivated almost exclusively for the seed, rose from 1,295,000 hectares before the War ⁽¹⁾ to 2,510,000 hectares in 1932. In the last few years, however, the area under flax fell, amounting to 2,067,000 hectares in 1937 against a total area for the world in this year of 3,361,400 hectares.

In the last few years the average percentage share of land under flax in the total cultivated area of the U. S. S. R. was about 2 per cent.

As Table XVI shows, Russia's output of flax has experienced a large increase over the average of 3.3 million quintals for the years 1926-30, which represented about 59 per cent. of the world output; in 1938 5,500,000 quintals were produced, amounting to 75.03 per cent. of the world output.

After the U. S. S. R. come, though of very much less importance, Poland, Germany, Lithuania, Latvia, Belgium, France, the Netherlands, Czechoslovakia, Yugoslavia etc. All these countries together, however, only contributed a third of the total European output in 1937.

This shows Russia's importance as a flax producer for the European flax industry. Indeed, the U. S. S. R. has practically a monopoly of the flax market.

Flax is the fifth textile in importance on the world market, with a share in 1936 of 6.3 per cent. of all textiles, far below cotton with 53.7 per cent. Next in order of importance come wool (14.5 per cent.), jute (13.5 per cent.) and

(1) In the area corresponding to the present territories of the U. S. S. R.

TABLE XVI. — *Russian Output of Flax.*

(Thousands of quintals).

Year	Russian output	World output	Percentage of Russian to world output
Average 1909-13	(¹) 5,130	7,390	69.42
" 1926-30	3,260	5,560	58.63
1931	5,533	6,900	80.19
1932	4,981	5,990	83.15
1933	5,480	6,700	81.79
1934	5,328	6,890	77.33
1935	5,512	7,650	72.05
1936	5,300	7,670	69.10
1937	5,080	7,530	67.46
1938	5,500	(²) 7,330	(²) 75.03

(¹) 3.3 million quintals in the territories at present constituting the U.S.S.R. — (²) Provisional figures.

hemp (6.9 per cent.). After flax in importance come rayon (3.9 per cent.), staple fibre (1.1 per cent.) and silk (0.3 per cent.).

It is interesting to note here that the agricultural product which first linked Russia with foreign markets was not cereals but flax. Exports of flax can be traced back to the year 1686, at the beginning of the reign of Peter the Great. In 1800 262 quintals were exported. By 1898 the figure had risen to 2.3 million quintals, by 1912 to 3.5 million quintals.

TABLE XVII. — *Russian Exports of Flax* (¹).

(quintals and per cent.)

Year	Russian exports	Total Russian output	Percentage of total output exported	World exports	Percentage of Russian to world exports
Average 1909-13	2,821,106	5,130,000	54.99	3,855,000	73.18
" 1926-30	631,800	3,260,000	19.38	3,221,300	19.61
1931	796,400	5,533,000	14.39	2,231,100	35.70
1932	824,400	4,981,000	16.55	2,383,300	34.59
1933	880,200	5,480,000	16.06	2,116,600	41.59
1934	913,000	5,328,000	17.14	2,503,900	36.46
1935	590,600	5,512,000	10.71	2,746,000	21.51
1936	571,000	5,300,000	10.77	3,130,000	18.24
1937	344,800	5,080,000	6.79	—	—

(¹) International Yearbook of Agricultural Statistics, 1937, 1938.

As Table XVII shows, exports of long staple flax in absolute figures increased constantly from the end of the War to 1934, when they amounted to 913,000 quintals representing 17.1 per cent of the total Russian output and 36.4 per cent.

of world exports. Since 1934 exports have fallen off both relatively and absolutely. Thus average exports for the years 1926-30 were 19.4 per cent., or almost a fifth, of the U. S. S. R. output, while in 1937 they were only 6.8 per cent. or about a fifteenth. Further, before the War Russia's exports of flax amounted to almost three-quarters of world exports, while by 1936 this figure had fallen to 18.24 per cent., or somewhat less than a fifth.

In post-War years exports of flax from the U. S. S. R. have shown the same tendency as exports of wheat. Home production rose during the first and second Five Year Plans compared with that of the NEP period, and in some years even passed the pre-War figures, which related to the territories of the Russian Empire; but at the same time the percentage share of Russian exports relative to output has greatly declined.

This is due, as in the case of wheat exports, to the large increases in the employment of flax for the home industry. In 1937 the factory output of linen yarn reached 96,000 metric tons, compared with 39,500 metric tons in 1913 and 54,000 metric tons in 1932. In the same period the output of linen cloth rose from 119 million square metres in 1932 to 300 million square metres in 1937 ⁽¹⁾.

As a result of the large quantities of flax retained in the U. S. S. R. for home consumption, prices on the world market rose; for, as said before, Russian exports of flax have a decisive influence on world prices. Thus average prices per metric ton of Belgian and Latvian flax, c. i. f. in London in the years 1929-37 were as follows:—

TABLE XVIII. — *Average annual Prices of Belgian and Latvian Flax.*
(Gold francs per quintal)

Year	Belgian water-retted	Livonian Z. K.
1929	336.12	187.05
1930	267.61	127.24
1931	243.72	86.83
1932	202.08	80.74
1933	172.91	86.71
1934	160.83	92.66
1935	159.81	117.07
1936	174.33	94.01
1937	193.40	117.87
1938	175.10	102.51

As a result of its superior quality the prices of Belgian water-retted flax are generally fairly high. In 1932, at the worst period of the depression and in the three following years, prices of both these types of flax fell to half their 1929 level. Since then a considerable rise in world prices has taken place, although in 1938

⁽¹⁾ *Le Journal de Moscou*, September 6, 1938.

they again fell some what. Compared with the prices of other textile fibres, prices of flax have remained fairly stable.

The reduction in the supply of Russian flax to the world market led to many countries expanding their own output of flax. Germany has shown the largest increase with a rise in the output of flax fibre from 31,000 quintals in 1933 to 339,000 quintals in 1937, thus expanding production more than tenfold in five years. Germany, like many other countries, such as Rumania and Ireland, guaranteed fixed prices to flax producers. These prices are higher than those ruling on the world market, and the State grants bonuses to producers for increasing their output.

The output of flax in Belgium has also risen considerably, from 78,000 quintals in 1933 to 238,000 quintals in 1937. In France output rose from 92,000 quintals in 1933 to 243,000 quintals in 1936, but fell in 1937 to 190,000 quintals as a result of the reduction in the area under this crop. Production has also substantially increased in Italy and Poland.

The countries coming next to the U. S. S. R. as exporters of flax, though very much less important, are Belgium, Poland, Lithuania, the Netherlands, Latvia and Estonia. France and the Netherlands also export large quantities of flax straw to Belgium, where it is retted in the lower reaches of the river Lys and then worked up by the factories in the district of Courtrai.

In 1936 Russian exports of flax were distributed mainly between the following countries (in thousands of metric tons and in per cent.) ⁽¹⁾:

	1000 metric tons	per cent.
United Kingdom.	24.4	43
France	16.6	30
Belgium	9.9	18
Czechoslovakia	2.4	4
Germany	1.5	3
United States	0.8	1
Sweden	0.5	1
Other countries	0.1	—
Total	56.2 ⁽²⁾	100

⁽²⁾ This figure differs somewhat from that on p. 199.

The United Kingdom is the most important market for Russian flax, taking more than two-fifths of the total Russian exports. Next comes France with about a third and Belgium with about a fifth. These three countries together import more than 90 per cent. of the total exports of flax from the U.S.S.R. Czechoslovakia took 4 per cent., Germany 3 per cent., the United States and Sweden coming last each with 1 per cent.

The United Kingdom was the most important market before the War too, importing in 1912 for example 948,265 quintals, or almost a third of the total of 3,163,558 quintals exported. The British market has now become still more important.

⁽¹⁾ *Industrial Fibres*, Imperial Economic Committee. London 1938, p. 73.

In 1912 Germany took second place with a total importation of 816,730 quintals. Belgium came third with 722,870 quintals, then France with 367,250 quintals and Austria-Hungary fifth with 244,069 quintals.

France and Germany have therefore been the foreign markets which have most changed in importance in comparison with the pre-War period. Germany's position before the War as the largest importer of Russian flax has now been taken by France, who has risen from fourth place before the War to second now. At the same time Germany has fallen from second to fifth place.

Manufactured or semi-manufactured goods are now exported in large quantities from the U. S. S. R. In 1937 about 93,000 quintals of the total flax exports were exported in this form. The United States, which is the largest cotton exporting country in the world, is also the largest purchaser of linen goods, taking about 90 per cent. of total Russian exports. About 6 per cent. of the exports of the finished goods go to Sweden and Norway, about 2 per cent. to Iran, and smaller quantities to the United Kingdom and Lithuania.

Export trade in butter.

Unlike exports of wheat and linen, the export trade in butter is a relatively new phenomenon. The exportation of Siberian butter in large quantities, whether abroad or to European Russia, began with the opening of the Trans-Siberian railway at the end of the last century. In 1894 65.5 quintals were exported, but by 1900 exports had already reached 163,800 quintals, whilst in 1913 exports were 790,000 quintals, amounting to 55 per cent. of the total production in Russia with a value of 71,558,000 gold roubles.

Of all Russian exports, butter came fourth in order of importance, being preceded only by wheat, barley and flax.

Before the War about a tenth of all butter exported from Siberia went to European Russia, the remaining 90 per cent. being sent abroad. Of the importing markets, the United Kingdom came first taking 48 per cent. of total Russian exports of butter, whilst Germany came second with 35 per cent. Denmark took 12 per cent., the remaining 5 per cent. being distributed between various other countries.

The War at first greatly reduced, and then completely paralysed butter exports. Only in 1923 were butter exports recommenced, this time through State and collective organizations. In this year about 40,950 quintals were exported to the United Kingdom and about 13,000 quintals to Germany. In 1924 exports to Germany rose steeply.

The butter for export is mainly supplied by the R. S. F. S. R., 88 per cent. of the total Soviet exports coming from this source. Within this Republic West Siberia supplies 41.6 per cent. of the total exports of butter from the U. S. S. R., the Northern territory 9.4 per cent. and Kasakstan 4.6 per cent. These areas are all rich in pasture and meadow land, and in them stockraising has for centuries been the leading form of agriculture.

The following table shows exports of butter from the U. S. S. R. in the last nine years compared with world exports of butter.

TABLE XIX. — *Exports of Butter from the U. S. S. R.*
(Metric tons)

Year	U. S. S. R. exports	Total exports of the most important exporting countries	Per cent.
1929	25,400	504,053	5.04
1930	10,522	529,631	1.99
1931	30,855	569,803	5.41
1932	30,934	544,439	5.68
1933	37,205	555,549	6.70
1934	37,903	588,417	6.44
1935	29,097	596,020	4.88
1936	23,177	595,641	3.89
1937	14,662	590,948	2.48

Although the U. S. S. R. (1) is the second largest producer of butter in the world, coming next to the United States, exports of butter have fallen both absolutely and relatively in comparison with world exports; in 1929 and 1933 the share in world exports was respectively 5.0 and 6.7 per cent., while in 1937 this figure had fallen to 2.5 per cent.

Compared with the volume of butter exported from the chief exporting countries of the world such as Denmark, who exported 152,911 metric tons in 1937, or such overseas countries as New Zealand and Australia, who come second and third respectively as world exporters of butter, Russian exports take a very modest place. As an exporter in Europe, the U. S. S. R. has taken either second place as was the case from 1932 to 1934, coming immediately after Denmark, though at a very considerable distance, or she has taken seventh place, as in 1937, coming after Denmark, the Netherlands, Ireland, Sweden, Latvia and Lithuania.

The percentage proportion of Russia's exports to her production of butter fell from 42.9 per cent. in 1932 to 12.4 per cent. in 1936.

The decrease in the cattle population from 1930 to 1934 as a result of the overthrow of the *Kolkhoz* movement was partly responsible for the reduced output of butter. In part, however, it was also due to increased consumption of butter within the Soviet Union.

In 1911 the per capita consumption of butter in Russia was $\frac{1}{2}$ kg. and this figure fell to $\frac{1}{7}$ in 1922, compared, for example, with a consumption of butter in the United Kingdom in 1913 of 8 kg. and in 1923 of 9 kg. per head; in France of 5 and 6 kg. respectively; in Germany of 5 and 4 kg. respectively; in the United States of 4 and 6 kg. respectively; and in Sweden of 6 and 8.5 kg. respectively.

By 1931 the per capita consumption of butter in the U. S. S. R. had risen to 3.5 kg. per head, while in 1935 the figure was 5 kg, or not much less, for example,

(1) There are no official statistics of the total U. S. S. R. output of butter.

than in France, where in the same year the figure was 5.7 kg, or in Sweden, where it was 5.9 kg.

The United Kingdom continued to be the principal export market for Russian butter after the War, taking 80 per cent. of the total exports of Russian butter in recent years. The United Kingdom is indeed by far the largest importer of butter in the world, and in 1937 took four-fifths of the total world imports. From Russia the United Kingdom imported 8,405 metric tons in 1930, the figure rising to 28,587 metric tons in 1933, but falling again in 1937 to 13,188 metric tons.

Germany came second, importing in 1930 3,135 metric tons and in 1932 13,288 metric tons. Since then these imports slowly fell off, to cease completely in 1937. The German butter quota system of 1932 led to a re-grouping of the countries exporting to Germany, and this led to a sharp fall in her imports from the U. S. S. R. Thus in 1932 the U. S. S. R. was the largest exporter of butter to Germany, while in 1933 she had fallen to sixth place.

In addition to these two markets, Italy took 3 per cent. of Russia's exports of butter in 1934. In recent years, however, these exports have entirely ceased.

In the last few years butter has also been exported to the United States, who in 1936 took 4.1 per cent. of Russia's exports of butter. Small quantities of butter have also gone to Mongolia, amounting to about 1 per cent. of Russian exports.

(The third and last section, to be given in a later issue, will deal with the wood and fur trades).

M. TCHERKINSKY.

ECONOMIC AND CULTURAL CONSIDERATIONS ON THE FIBRE-AGAVES

I. — The different hard fibre plants.

Since very early times Agave plants have been used in Mexico for the bleeding sap that flows from the centre of the plant after cutting the flower-stem. This sap is produced very abundantly over four or five months of the year, yielding up to a thousand litres of juice per plant. In Mexico this is converted by fermentation into alcoholic beverages, partly into a brandy called *pulque*, partly into a wine called *mescal*. Furthermore, in the countries of origin Agaves were used as a source of fibre; today, these countries are the biggest furnishers of hard fibres called "Sisal" or "Henequén". In addition to the Sisal plant (*Agave* sp.) the principal hard rope fibre plants now used are the Manila hemp (*Musa textilis*), the Coconut fibre (*Coir*, *Cocos nucifera*), the Mauritius hemp (*Fourcroya gigantea*), the Sansevieria fibre (*Sansevieria* sp.), the New Zealand hemp (*Phormium tenax*) and the little known Carob plant of Brazil (*Neoglaziovia variegata*). None of these plants was widely used until 1850, when in Yucatán (Mexico) the *raspador* (decorticator) was invented for the preparation of the Henequén fibre, and Manila hemp began to come into ever wider use, superseding the true hemp, i. e. the fibre derived from the stalks of *Cannabis sativa*.

TABLE I. — *World Export of Hard Rope Fibres.*

(Metric tons)

Territory	1934	1935	1936	1937	1938
Dutch East Indies, all sorts . . .	69,948	93,430	78,217	86,602	84,328
Philippines "Maguey"	10,760	14,725	21,707	15,585	6,014
" Sisal "	—	—	131	747	
<i>Total Asia</i>	80,708	108,155	100,055	102,934 ⁽¹⁾	90,342
Portuguese West Africa	3,922	4,364	4,907	—	157,420
Tanganyika	73,670	83,999	81,844	92,082	
Kenya	24,400	33,200	35,302	31,775	
Uganda	—	561	1,451	891	
Nyasaland	—	—	468	893	
Portuguese East Africa	18,955	21,138	20,131	21,887	9,652
Madagascar	1,919	2,511	2,476	2,637	
Senegal (French Sudan)	2,552	3,367	2,631	3,110	
Ivory Coast	1,159	876	1,002	913	
Belgian Congo	199	110	579	—	
Togo	—	2	—	—	9,652
French Guinea	463	432	380	367	
<i>Total Africa</i>	127,239	150,560	151,175 ⁽¹⁾	160,000 ⁽¹⁾	167,000
Brazil	—	137	—	—	76,200
Mexico	68,321	89,751	72,180	93,472	
Panama	—	—	117	—	
San Salvador	15	163	871	—	
British West Indies	21	617	2,230	—	
Bahamas	—	—	—	—	15,240
Jamaica	—	—	—	15,240	
Cuba	1,928	5,993	5,660	—	
Haiti	6,046	4,988	5,670	—	
Dominican Republic	46	—	—	—	
Colombia	—	15	—	—	—
Argentina	—	47	—	—	
<i>Total America</i>	76,377	101,711	86,728	109,000	91,000
<i>Total Agave</i>	284,324	360,426	337,958 ⁽¹⁾	372,000 ⁽¹⁾	348,000
Manila Hemp (Philippines)	174,500	188,201	167,124	165,339	148,000
Mauritius Hemp	669	446	1,389	1,863	250
New Zealand Hemp	3,648	3,720	5,798	7,620	4,000
<i>Grand Total</i>	463,141	552,793	512,269 ⁽¹⁾	547,000 ⁽¹⁾	500,000

⁽¹⁾ Estimate

The figures for 1938 are taken from the *Annual Review* of Messrs. Wigglesworth & Co. Ltd., London.
The other figures are reprinted from the *Bulletin of the Central Bureau of Statistics*. Batavia 1938, Landsdrukkery.

TABLE II. — *Export of Hard Fibres from Producing Countries* ⁽¹⁾.
(Metric Tons)

Destinations	Dutch East Indies	East Africa ⁽²⁾	Philippines	Mexico	Grand Total Round figures
	1935	1935	1935	1933	
Netherlands	19,658	5,240	1,297	2,031	28,100
Great Britain	1,292	36,629	44,377	—	82,100
Germany	10,101	14,496	3,203	—	27,800
France	1,217	4,346	4,202	813	10,500
Belgium	7,401	34,680	4,388	16,750	63,000
Italy	425	1,336	1,448	—	3,200
Spain	1,365	1,454	2,355	—	5,000
Denmark	953	75	1,682	—	2,500
Norway	549	5	1,950	—	2,500
Sweden	1,231	150	776	2,032	4,100
Baltic States	127	10	—	—	140
Balkan States	54	12	—	—	77
Canada	2,467	3,787	3,667	—	9,800
United States of America	38,734	9,207	44,474	77,419	169,900
South America	20	2,061	617	—	2,700
Egypt (Egyptian Sudan)	508	1,065	—	—	1,500
Union of South Africa	173	371	—	—	540
British possessions	66	151	1,509	—	1,700
Japan	682	—	66,801	—	67,400
Australia	4,126	35	3,395	—	7,500
New Zealand	257	47	517	—	800
India	—	12	1,140	—	1,150
Palestine (Cyprus)	—	10	—	—	10
Portuguese possessions	—	25	—	—	25
Turkey (Syria)	—	76	175	—	250
Iran	—	23	—	—	23
U. S. S. R.	—	59	—	—	60
Arabia	—	19	—	—	20
Czecho-Slovakia	—	5	—	—	5
China	—	—	227	—	230
Unknown	880	—	—	15	900
<i>Total</i>	92,346	115,386	188,200	99,060	—
<i>Tow</i>	1,084	—	—	—	—
<i>Total value</i>	7,293,325 guilders	1,570,440 Pounds sterl.	22,947,933 Pesos	15,660,967 Mex. Pesos	—
<i>Value per metric ton or 1,000 kilograms</i>	78.98 guilders	13. 4. 0. Pounds sterl.	121.93 Pesos	158.10 Mex. Pesos	—
<i>Value per long ton in pounds sterling</i>	10. 14. 10.	13. 4. 0.	12. 5. 0.	10. 14. 0.	—
<i>Export of manufactured cordage in long tons</i>	—	2,036	8,006	—	—

⁽¹⁾ According to official statistics. More recent figures for Mexico were not available.

⁽²⁾ Long tons.

However, the cultivation of Manila hemp remained limited to the Philippines and there it was mainly confined to the "hemp provinces", which are in the southern parts of Luzon and in the Visayas Islands (Camarines, Albay and Leyte). Attempts to extend the cultivation of Musas elsewhere failed owing to the special requirements of this plant as regards climate and soil. In south Sumatra (Lampung) two plantations exist, but their output has not for some years exceeded 200 to 300 metric tons. Nevertheless, the export of Manila hemp rose steadily, reaching 90,000 metric tons in 1900, passing the 100,000 tons mark in 1906, and reaching a peak of nearly 190,000 tons in 1935. But Manila hemp has also found competitors in Sisal hemp and, to a much smaller extent, in the Mauritius and New Zealand hems. The Sisal, a plant originating from the semi-arid regions of South and Central America, especially Mexico (Yucatán), grows fairly well throughout the tropics and subtropics on soils where other plants such as coffee, tea and rubber could not yield sufficient crops.

In the last few years, the hard fibre plants have attracted special attention on account of the disappearance from the European market of some of the soft fibres. Since 1932 the export of flax from the U. S. S. R. has ceased. The policy of the Italian Government in regard to Italian hemp results in home-produced fibres being held back from the open market. The *Federcanapa* maintains prices at a level considerably above those at which other competing fibres are being sold, with the result that the export trade has been on a very limited scale except to Germany, which country is said to have purchased about 30,000 metric tons on the barter system. On account of this scarcity of supplies in the soft fibre market great efforts have been made to replace these fibres by hard fibres, of which the spinning process has been greatly improved. Nowadays one finds Sisal used in the production of yarns, lines, carpets and mats and other products for which formerly hemp alone was used.

II. — Production and trade of hard fibres.

From Table I we see how, owing to its adaptability to climate and soil, Sisal cultivation has now spread over the hot countries of the whole world. In addition to the countries named in the Table we find some production also in the Mediterranean countries, which, however, is only for local consumption.

Furthermore, we see from Table I that:

1. Manila hemp, also known as *Abacá*, is no longer the principal hard fibre produced. In the last two years Sisal fibre production has passed that of Manila hemp and is now more than twice as great.
2. The total output of hard fibres is fairly well distributed between the different nations:

U. S. A. territories	181,500 metric tons or 33 %
British "	151,000 " " 28 %
Dutch "	86,600 " " 16 %
Mexican "	93,500 " " 17 %
French "	6,000 " " 1 %
Portuguese "	26,000 " " 5 %

3. The three most important producers of Sisal, namely the Dutch East Indies, Tanganyika and Mexico contribute nearly equal shares to the world output of Agave fibres.

As regards the trade in hard fibres, Table I shows that in 1937 and 1938 the total exports underwent the following fluctuations. In 1937 the exports of Sisal rose by about 35,000 tons above the 1936 figure, whilst the exports of Manila and other hemps hardly showed any change. In 1938, however, the former showed a decrease of about 24,000 tons and the latter of about 23,000 tons on their 1937 figures. Therefore the total exports of hard fibre, which in 1937 had risen by about 35,000 tons as against 1936, in 1938 fell by about 47,000 tons as against 1937.

Table II shows the destinations of the exports from the producing countries. Except in the case of Mexico, of which the United States absorb nearly 80 per cent. of the exports and Belgium and Holland as the main countries of entrepôt trade for hard fibres take the remainder, the exports from the Dutch East Indies and from East Africa are fairly well distributed over the whole world, so that all countries with mercantile or fishing fleets have their needs satisfied.

There are now some eight countries absorbing the bulk of the exports. Of these the United States of America are by far the largest with 170,000 metric tons; next comes Great Britain with 82,000 tons, followed by Japan with 67,000 tons, Belgium with 63,000 tons, Holland with 28,000 tons, Germany with 27,000 tons and France and Canada with 10,000 tons each. Belgium, however, serves mainly as a country for entrepôt trade, importing according to her own statistics (1937) only 35,395 and 6,947 metric tons of Sisal and Abacá respectively, of which 16,165 tons of Sisal were re-exported, mainly to France, Germany and Russia, as raw fibre.

III. — Utilization of hard fibres.

The utilization of hard fibres varies according to the different countries.

In the *United States of America* and *Canada*, Henequén is used more than any other fibre in the manufacture of binder twine (600 to 650 feet per pound) for harvesting grain. There was an ever increasing demand for this purpose from 1888 to 1916 when wheat prices, like nearly all prices, were rising. Since then there have been periods of over-production and also periods of scarcity. However, the increasing use of the "combine" (combined harvesting and threshing machine), is reducing the demand for binder twine. Moreover, the rapidly increasing production of Sisal has resulted in serious competition for Henequén. Now both fibres, alone or mixed together with or without Abacá, are also used for hammocks, general purpose ropes, halter ropes and to some extent for marine cordage. Finally in the United States we find Sisal used in combination with cotton for the manufacture of coarse canvas and of sacks.

In the *United Kingdom*, the next largest consumer, the depression of the Sisal industry in 1930-31 led to an examination of the possibilities of developing new industrial uses for Sisal fibre. In other countries such as Holland efforts

have been made to use Sisal as a substitute for Jute and to break its monopoly in sack manufacture. But such a policy would not be appropriate for Britain, as Jute is also an Empire-grown fibre plant. Therefore the Imperial Institute of London has made efforts to find other uses for Sisal and to diminish reliance on Manila hemp, which is not much grown within the Empire. For this reason the Admiralty was induced to undertake experiments in order to overcome the prejudice against the use of Sisal for marine cordage.

These experiments have given good results, and the tests covered a wide range as over 100 ships and other users participated in them. Incidentally, a good many complaints arose, but only four instances of actual parting of the cordage during use were reported. The following defects can, however, be definitely regarded as peculiar to marine cordage made exclusively from Sisal:

(1) It shrinks in length when wet and requires continual care in wet weather.

(2) It swells when wet.

(3) It elongates considerably under load, particularly when wet, and in some cases becomes definitely long jawed. Under some conditions it tends to return to size after the load is removed, but generally the extension is more or less permanent.

(4) It becomes greasy and slippery and is difficult to handle when wet, and greater care is necessary when working it round a cleat or bollard.

(5) After prolonged use it tends to chafe and fray and becomes discoloured.

On account of these results, the Admiralty has made the following recommendations:

"In considering the results of the trials, the question of Sisal being an Empire product must be given prominence. If the two fibres, Sisal and Manila, were on equal footing as regards their origin, the results would not warrant any departure from the existing practice. As, however, the policy of the Admiralty is to give a preference to Empire products the results are sufficiently promising to warrant the partial adoption [of Sisal, and (so long as supplies of Sisal can be obtained at satisfactory prices) arrangements are being made for 50 per cent. of the Service requirements for towing hawsers, heaving and hauling lines to be made from Sisal, as also for its entire adoption in the manufacture of much other cordage of minor importance in navigation".

Again in 1933-34, the Admiralty made experiments in order to ascertain the capacity of Sisal to absorb tar and to test whether cordage so treated would have its weather-resisting properties increased. To carry out the tests, four 120-fathom coils of 3-inch cordage were manufactured. All the yarn used for this purpose was from the same delivery of No. 1 East-African Sisal. Two of these coils were tarred and two untarred. The two tarred coils were prepared in the usual manner, i. e. the yarn was passed through a bath containing Archangel tar. The quantity absorbed by the fibre was 12.87 per cent. of the weight of the finished coil. During the process of manufacture a batching compound was used, about 4.5 per cent. being used for dressing the fibre which was subsequently tarred, and 12.5 per cent. for the untarred fibre.

The initial strength of the untarred yarn before manufacture into cordage was 175.4 and of the tarred 163.6 lb. Strands removed from the cordage at the end of the nine months' test period gave the following results (average of ten tests):

	Sea exposed	Roof exposed	Storage conditions
Untarred	72.0	95.0	161.0
Tarred	132.5	139.5	150.5

The Admiralty considered the results of these tests sufficiently satisfactory to warrant consideration of the general adoption of tarred Sisal cordage in lieu of tarred hemp cordage, and enquiries are now being made as to the extent to which such substitution can be effected.

In *Japan*, the third largest consumer, importing some 70,000 tons of hard fibre, this commodity is used principally for marine cordage, but also for many other products such as coarse canvas, mats, blinds and brushes. In Japan too Sisal has been largely used for the manufacture of braids used in the ladies' hat industry. Small factories for this purpose have sprung up in Japan due to the encouragement and activities of the Home Industrial Association of Japan, and the braids made are shipped to all parts of the world. The use of Sisal for the manufacture of shoe tops is also recorded in Japan.

In *Belgium* such of the import as was not re-exported as raw fibre was absorbed by the large textile industry and mixed with the waste of other fibres. In 1937 13,702 metric tons of mixed fibres were manufactured into ropes, cables and lines and exported to Norway, France and England; 8,531 metric tons were used in the production of coarse yarns, half of them exported to France; and the remainder were used for mats and carpets.

In *Germany*, the bulk of the imported hard fibre (mostly Sisal) is used for marine cordage, the German navy having been equipped exclusively with Sisal ropes during the Great War. The rest is manufactured into binder twine, general purpose lines and strong coarse threads.

Of the other importing countries, *Holland* chiefly deserves mention on account of the investigations being made in the mother country and the colonies into the manufacture of sacks out of Sisal fibres. However, this plan is by no means new. In 1933 it was reported that some 50,000 sugar sacks were on the way to, or had been landed at Liverpool, and that there were some 3,000,000 sacks in Mexico to be used for packing produce for shipment. These sacks were manufactured under Government instruction in order to restrict the import of Jute. Also in Colombia, a local industry for the manufacture of sacks has grown up amongst the native population; and during the War, in 1918, it was recorded that Bucaramanga exported over 1,000,000 sacks, and another town exported over 200,000, representing 1,200 tons of fibre. In 1932, the Government of the Dutch East Indies ordered that experiments be begun in the manufacture of bags from Sisal fibre by prison labour. This has been started especially on the island

of Madura where many wild or semi-cultivated Agaves grow, and where the State salt monopoly requires some hundreds of thousands of coarse bags each year. Owing to the cheap prison labour the yarn is spun by hand and only industrially woven on looms in the prison of Pamekasan. The production was as follows:

1934	150,000	large	bags						
1935	210,000	»	»	and	6,000	small	bags		
1936	300,000	»	»	»	8,000	»	»		

The large bags measure 107.5 cm. by 75 cm. and the small ones 60 cm. by 75 cm.

In the year 1933 the *Handel Vereeniging Amsterdam* reported the installation of an experimental factory equipped with modern English plant for the manufacture of bags in Java.

But in Rotterdam already as early as 1927 a Sisal rope factory tried to introduce the manufacture of bags, and it is said to have exported Sisal bags to America. Also this factory has begun to deliver sacks to the dealers in coal for domestic uses, the bags being superior for this purpose to the Jute bags formerly used.

On the strength of these efforts to look for a market for the hard fibres, the Trade Museum of the Colonial Institute of Amsterdam induced some importers to initiate experiments with Sisal bags in the overseas trade in colonial commodities. Accordingly small lots of pepper, copra, cocoa and nutmegs were shipped from the Dutch East Indies to Rotterdam and small lots of coffee and oil-palm kernels from the Congo to Antwerp.

The bags had an average size of 105 by 70 centimetres and an average weight of one kilogramme, corresponding to a weight of 680 grammes per square metre. Jute bags from Bengal showed the following figures:

A twills 110 × 65 cm. 1.19 kg. = 830 gr. per sq. m.

Light C 100 × 70 cm. 0.91 kg. = 650 gr. per sq. m.

Thus, as regards weight, the Sisal bag did not compare unfavourably with the Jute bag. However, it was anticipated that the Sisal bag, being less smooth and flexible, might be harmful to the content.

With regard to pepper, this harmful effect proved to be negligible, and the opinion of the consignee was completely favourable.

In the case of cocoa, a commodity of superior quality, the Sisal bag was considered to behave less favourably. The bags were too badly and loosely woven, and the slight damages so easily done to the bag by handling in transport and by taking samples, could only be repaired with difficulty owing to the lack of smoothness of the tissue. Threads drawn through for repairs opened the tissue next to the damaged part, so that the repairing caused more harm than did the original damage.

The same opinion was passed as regards the transport of nutmegs in Sisal bags.

In the case of shipments of copra in Sisal bags, the opinion of the consignees was altogether favourable. These experiments resulted in the Association for the Copra Trade allowing the use of Sisal bags as well as of Jute bags in the

standard contracts. However, the consignee is permitted to deduct 4 Dutch cents per bag owing to the lower value Sisal bags have in the trade in old bags.

The small Sisal bags delivered by the Dutch factory for the transport of ores from the Congo found a ready acceptance.

On the other hand, those delivered to the tin mines in the Dutch East Indies were rejected on account of the lack of density of the tissue, which resulted in the ground tin leaking out. However, in the same country the shipment of unground manganese was permitted and the use of Sisal bags met with no objection.

To summarise, the Amsterdam Museum of Trade concludes that:—

a. The Sisal bag does not present any difficulties in the shipping of pepper, nutmegs of inferior quality, coffee, copra, oil-palm kernels and loose salt, but it is unsuitable for the transport of cocoa. The Sisal bag also is unsuitable for ground tin and ground manganese, but may well be used for unground ores.

b. The difficulties in the use of Sisal bags are mostly due to the lack of smoothness of the tissue, making it nearly impossible to repair the damages occasionally done in handling and in the taking of samples. In any case Sisal bags are less easily repaired than Jute bags.

c. The Sisal bag is used frequently in the shipment of coffee from Central America.

IV. — Prices of Sisal.

After these remarks on the uses of Sisal the next consideration is that of prices, especially in relation to the prices of the competing commodities.

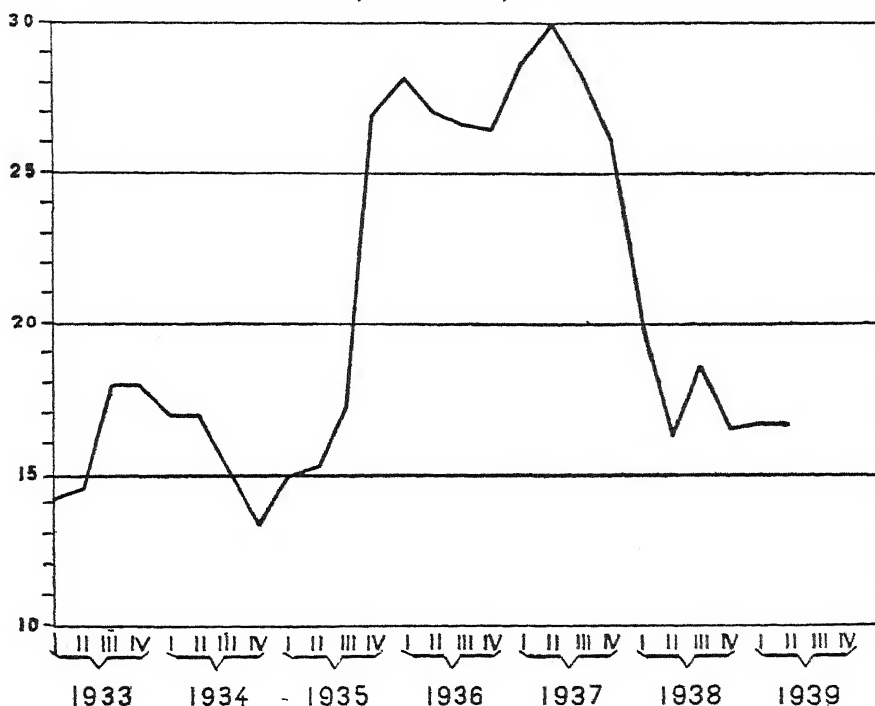
The use of Sisal in the manufacture of sacks cannot bring much relief to the Sisal market. For this purpose use can generally only be made of tow and inferior qualities of fibre, especially of Cantala owing to its better flexibility. For the producer, the pivot price of Sisal lies near £ 15 per long ton, this being the average total cost price in the main producing countries (see part VI). During recent months the London price of No. I. quality has again approached this pivot, thus facilitating the use of Sisal for different purposes. However, in times of better prices the competition which Sisal has to meet depends largely on the prices of other commodities serving more or less the same requirements. The yearly average prices in London of commodities competing with Sisal during 1933 to 1937 are set forth in the following table taken from the International Year-book of Agricultural Statistics, 1937-1938.

	1933 L.s.d.	1934 L.s.d.	1935 L.s.d.	1936 L.s.d.	1937 L.s.d.
Jute "First marks"	15. 13. 2	15. 9. 9	18. 11. 8	18. 6. 8	20. 8. 9
Manila Hemp "J. 2" grade . .	15. 18. 2	14. 17. 8	19. 4. 3	28. 1. 1	33. 16. 10
Sisal No. 1 East African . . .	16. 8. 7	15. 9. 5	19. 7. 11	27. 9. 2	27. 4. 8

According to this table, the prices of Sisal and Manila have followed a more or less equal course, but the competition of these two with Jute in the years 1936 and 1937 must have raised difficult problems for spinners, even if it is taken into account that tow and waste of hard fibres generally cost £ 3-4 less than No. I quality.

In Europe only the use of the most modern spinning methods may possibly allow competition between Jute and Agave fibre and their mutual substitution, as the latter cannot be spun as fine as Jute. Therefore, for the same surface of twill, the quantity of Sisal fibre required considerably exceeds that of Jute and so makes competition impossible. Hence also, the substitution of the cheap Caroà fibre of Brazil is handicapped owing to the smaller experience of spinning in that country and to the less modern plant used.

Trend of Prices c. i. f. London.



In consequence of these limited possibilities of sale, the prices of Sisal fluctuate very much. As can be seen from the graph, years of high, profitable prices alternate with years of very low, unremunerative prices, and it is difficult to find adequate reasons for these fluctuations. Therefore it can only too easily be understood that Sisal planters look for uniform restrictions on production and speak of agreements to be made as regards selling prices. In September 1934 a meeting was held in London, wherein participated representatives of the main producing territories, i. e. the Dutch East Indies, East Africa, Mexico, the Philippines and New Zealand which agreed "in principle" to the adjustment of the outputs of the territories to world consumption. This meeting - perhaps indeed as a result of it - was followed by a general rise of prices of hard fibres. Since then, however, nothing further has been done to apply this remedy of "adjustment of prices", nowadays so very popular in the trade of most other commodities.

In the case of Sisal one must be very doubtful as to the success of any such agreement, as it would be very difficult to gather the many producers together into one scheme. For instance, some countries such as Mexico, have a definite market assured them by their geographical situation, whilst other producers, e. g. of Cantala, are assured of a market by a certain standardisation of their product. Last, but not least, in the Dutch East Indies, some 50-60,000 tons are controlled by one large and powerful company which is in general opposed to agreements with weaker companies.

V. — Different cultivated agaves and the characteristics of their fibres.

The literature on Agaves contains many incorrect statements regarding the classification of species, owing to the fact that many botanists have only studied dry herbarium species or green-house cultivated plants. The different species are adapted to certain conditions of soil and climate, and they also vary in size, quality of fibre, length of life and other important economic characteristics. It is therefore well to classify the plants.

The following eleven species are the principal ones, three of them only being at present of commercial value, but the others may become of more importance as a result of the researches on new fibre Agaves being carried out in the Amani (Tanganyika) Experimental Station.

The three most important species of commercial value are:

(1) *Agave fourcroydes*. Lemaire.

Henequén (pron: Hen-e-ken), Spanish name.

Sacci (pron: ssak-ki), Maya-Indian name.

Botanical synonyms: *A. rigida elongata*, *A. elongata*, *A. ixtle*, *A. rigida longifolia*.

Native in Yucatán (Mexico) and cultivated there. It constitutes more than 90 per cent. of the fibre of commerce. The plant is propagated from suckers, bulbils or seed. Suckers are used in practice. It develops a trunk and the leaves thereon are 1 to 2 m. long and always glaucous (grey-blue). Marginal spines always present, curved with points downward. The flower-stalk is 4 to 8 m. high with rather stout horizontal branches, forming seedpods.

(2) *Agave sisalana*. Perrine.

Sisal (Original Spanish name of port of shipment).

Yaxci (pron: jash-ki), Maya-Indian name.

Botanical synonym: *A. rigida sisalana*.

Native of Central America, not cultivated for fibre in Yucatán. Commercially cultivated in the Bahamas, Turks and Caicos Islands, Hawaii, Java, Tanganyika, Kenya and Uganda, Bengal, Indo-China and Congo. It is mostly propagated by suckers. The leaves are dark green or slightly glaucous and 1 to 1.75 m. long. Usually no marginal spines but occasionally small spines pointing downwards. The flower-stalk is 4 to 8 m. high with slender branches projecting upward. It will endure a wider range of conditions of growth than Henequén. Seedpods only on cut poles.

- (3) *Agave cantala*. Roxburgh.
Nanas sabrang (Java).
 Manila Maguey (Philippines).

Synonyms: *A. cantala*, *A. vivipara*, *A. rigida elongata*, *A. elongata*. Was introduced into the Philippines, India and probably Java in early Spanish times and not known in native wild condition in America; mainly cultivated in Java and the Philippines. The plant is propagated from suckers or bulbils; seed pods are not reported. The leaves are glaucous and 1.50 to 2 m. long. The marginal spines are hooked or curved pointing upwards. The flower-stalks are 4 to 7 m. high and slender. *Cantala* grows well on loam soil and endures moisture better than either *Sisal* or *Henequén*.

The Fibre-Agaves of minor importance are the following species:—

PLANT	FIBRE	LOCALITY OF PRODUCTION
<i>Agave tequilana</i> Trelease	<i>Tequila</i>	Jalisco
<i>A. zapufo</i>	<i>Zapufo fina</i>	Vera Cruz, Tamaulipas
<i>A. Lespinassei</i> Trelease	<i>Zapufo fuerte</i>	" " "
<i>A. Deweyana</i> Trelease	<i>Zapufo larga</i>	" " "
<i>A. lophanta</i> Schiede (= <i>Leguilla</i> Torr.)	<i>Tula ixtle</i> (Tamico)	Mexico
<i>A. falcata</i> Engelm.	<i>Guapilla</i>	
<i>A. striata</i>	<i>Espadinin</i>	
<i>A. cocui</i> Trelease	<i>Dispopo</i>	Venezuela

All Agave fibres are produced by the leaves, the stem is mostly contracted and also if developed does not yield fibres. In the Agave leaves three main zones of fibres can be delimited:—

(a) A peripheral zone, composed of one or more rather irregular rows of small fibres. These are of nearly circular cross section.

(b) A median line of large fibres. These are horseshoe-shaped in cross-section, containing a conducting strand in the open side of the crescent, and a smaller fibre opposite to the xylem of the strand.

(c) Fibres in the ground-tissue of the leaf. These form a series between the fibre-types of zones *a* and *b*.

Agave fibres fall into three types, all fairly well defined:—

(1) "*Mechanical*" fibres. — These are most strongly developed round the periphery of the leaf, though they also occur scattered through the leaf parenchyma. They vary in length from a few centimetres to almost the length of the leaf. These fibres are of great importance commercially, as, owing to their shape, they seldom divide during the process of manufacture. The "fineness" of a fibre sample therefore depends, from a commercial standpoint, almost entirely on the fineness of these fibres.

(2) "*Ribbon*" fibres. — These invariably occur in association with the conducting tissues. They run from base to tip, and if the fibres of a leaf are classified on the basis of length, the longest classes are entirely composed of these fibres. They are also important in that they readily split longitudinally, and in this way form a contrast to the mechanical fibres. The fineness of commercial fibres, therefore, is not dependent upon the original size of these fibres.

(3) "*Xylem*" fibres. — These fibres are of no commercial value as they are thin-walled, and invariably broken up and lost during the process of decortication of the leaf.

Generally speaking, no important differences exist between *Henequén* and *Sisal* fibres, such as do exist between *Sisal* and *Cantala*. Furthermore, these differences are only to be distinguished microscopically and are not always reliable.

The ash of Agave fibres fairly regularly contains prismatic pseudocrystals of calcium, originating from the oxalate of lime of the Agave leaves. These pseudocrystals are changed into needles of sulphate of lime by addition of sulphuric acid. On account of these incrustations of the ash, fibres of Agave may easily be distinguished from the Manila hemp fibres. Its ash contains only stegmata which remain after the treatment of the fibre with chromic acid. The stegmata are amorphous substances of silicium.

Agave-plants require a tropical climate. There are no commercial Agave-plantations outside the tropics. While the plants often survive temperatures of 2 to 15° C. below freezing point, they are sometimes also injured by cold even above freezing point. Henequén plantations have been worked almost under the Tropic of Cancer near Victoria, Tamaulipas, where light frosts occur nearly every winter. The bulbils and tips of the leaves are sometimes injured by the cold weather. But such damage is also reported from East Africa within the area of the tropics, where the Sisal is injured by heavy fogs during the early morning.

The average annual rainfall in the Henequén-growing areas of Yucatán is about 30 inches (750 mm), and the lowest recorded temperature is 10° C., but it is usually very dry in winter. The climate is arid, with an abundance of bright sunshine. In Java, Sisal grows in well drained soils with an average annual rainfall of more than 100 inches (2,500 mm).

Rains and fogs interfere with the drying of the fibre.

VI. — Producing countries of hard fibres and their methods of cultivation.

East Africa.

East Africa has become a most important producer of hard fibre so that it now stands level with the Philippines. Tanganyika Territory contributes the biggest share of Sisal fibres to the East African output, its export of this commodity indeed considerably exceeding that of such other products as coffee, cotton and gold. The percentage of Sisal exports by value in relation to the total exports of Tanganyika was as follows:—

1933	34.7 %
1934	32.0 %
1935	32.9 %
1936	41.5 %
1937	41.8 %

The value of the next most important products exported, such as cotton, coffee and gold amounted in 1937 only to 12.1, 10.6 and 8.6 per cent. respectively.

The principal export harbours from Tanganyika Territory are Tanga and Dar-es-Salaam, which together take more than 70 per cent. The export harbour for Kenya is Mombasa.

The past year has proved most disappointing to Sisal producers, quotations moving for the most part within narrow margins resulting in an average price of about £ 17. 5s. for No. I grade. This figure is quite unremunerative to planters, giving them little encouragement to develop their estates any further. Hopes were raised of substantial sales of fibre resulting from the record sowings of wheat and reports of favourable weather prospects for grain crops throughout

the world. Therefore some disappointment was caused when binder twine prices for the season were fixed in America at one half cent per lb. below those of the previous year. During April the larger-scale buying on the part of Continental consumers caused a sharp upward movement, but this eventually slowed down owing to the fact that American spinners continued a cautious buying policy. One favorable feature is that most of the estates are well sold in advance, while stocks are low both in Africa and in Europe. The production of Africa has exceeded expectations, exports from Tanganyika again showing an increase of about 10,000 tons over last year, whilst the Kenya production is approximately the same as in 1937. Meanwhile, under the influence of constantly low prices, much work that is necessary to keep estates in good order is being postponed, pending a return to a profitable price level.

Adversity has prompted the African Sisal industry to introduce measures aiming at closer co-operation between Africa and London, as a result of which the Sisal Growers' Association has been constituted in London to represent the Growers' Associations of Tanganyika and Kenya and to look after Sisal interests generally. Further measures are in contemplation which, it is hoped, will eventually bring stability to the trade with a view to maintaining such conditions as will yield a fair return to producers.

Working in conjunction with this movement the Merchants' and Brokers' Section has been reorganised under the aegis of the London Chamber of Commerce, this section dealing with matters concerning quality, grading, packing, claims and contract conditions.

An unexpected step has recently been taken by the Tanganyika Government in promoting a bill entitled "The Sisal Industry Ordinance", the object of which is to provide for the registration of Sisal plantation and estate marks, to supervise the grading and packing of Sisal, and to take other measures for the promotion and protection of the industry.

Sisal tow values have kept fairly steady and the production has found a steady market, a large proportion being used for bag manufacture and also for bedding and upholstery purposes.

In East Africa two large centres of Sisal planting exist: Tanganyika and Kenya. The former extends mostly in the triangle between Tanga, Pangani and Korogwe, in the hot lowlands near sea level; the latter has its greatest concentration within fifty miles towards the north and east of Nairobi, at an altitude of some 1,500 to 2,000 metres above sea level. Here Sisal is planted in areas with an average rainfall of 600 to 700 mm. The highlands enjoy a cool climate during most months of the year, whereas the climate of the coastal belt of Tanganyika, where most of the Sisal of that territory is grown, is hot. The rainfall varies from 1,000 to 1,500 mm. yearly, in both centres fairly well distributed over the whole year, the main rains falling during April and May, the short ones during November.

In consequence of the cool climate the growth of Sisal in Kenya is prolonged in comparison with Tanganyika to nine years, and cutting cannot begin until the fourth year from planting, or a year later than in the warmer regions of Tanganyika.

In Kenya the soils are mostly red earths, laterized, or black or grey clay, whilst in Tanganyika sands overlying coral limestone prevail.

In Kenya the initial clearing of land for Sisal plantations is fairly easy on account of the original bush being sparse. The cost of bringing new areas into bearing in the fourth year of growth with the aid of diesel-engined tractors is between 150 and 180 sh. per hectare, while the replanting of old areas is about 30sh. cheaper. Methods in Kenya must of necessity be more thorough, and their results show that Sisal responds to superior cultivation. In the coastal plains of Tanganyika, where moisture is plentiful, weed control is the main problem.

Local conditions have determined the nature of planting methods in both instances. The cultivation of land for Sisal in Kenya is facilitated by using diesel-tractors, and elaborate though this method may seem, and longer though it takes to reach the cutting stage, it is no more costly than the primitive methods used for starting a Sisal plantation in Tanganyika by hand labour only.

In Tanganyika spacing is largely determined by the simple relationship between density of plants and yields. The number of plants is seldom below 4,000 per hectare and is commonly 5,000 or more, which is possible under a heavier rainfall. In Kenya the question of spacing is more involved, generally 2,250 to 3,360 plants per hectare being planted. However, these spacings have since been thought too generous, and the trend is now towards closer spacing in the row and wider distances between the rows.

In Kenya fibre yields are usually reckoned in long tons per acre per cycle instead of per hectare per annum as in Tanganyika. Five or six cuts are made per cycle, giving an average of 228 leaves from each plant during its life and yielding a total of about three long tons of fibre per acre. This is equivalent to nearly 1,500 kilogrammes per hectare per annum, which falls short by about half a ton, or occasionally much more, of yields obtained from newly planted areas in Tanganyika, which, however, may decline to the Kenya figure after regeneration by sucker selection. It is interesting that Kenya yields should compare so well, and they do so largely because Kenya leaves are of superior length and weight. Results show that short, spare leaf spells a rise in production costs.

It is indeed difficult to obtain reliable figures for yields per hectare of bearing area. Statistics are generally based on the weight per leaf, and all writers agree that the dry fibre content of the leaves is between 3 and 4 per cent.

Also as regards the cost price of the big plantations, very few reliable figures are available. Therefore it is of especial interest to find some returns in the "Times" (London) of July 28, 1936 given by Messrs. Sisal Estates Ltd. in their prospectus of that date. The Manager estimates that the long ton is produced at the following cost price:

	£	s.	d.
c. i. f. (London) costs, incl. selling expenses . . .	10	17	6
Provision for amortisation of growing crops . . .	2	0	0
Provision for depreciation of plant and machinery . . .	1	10	0
Provision for contingencies	0	7	6
London office expenses	0	10	0
Total cost . . .	15	5	0

This may be the pivot price above which the profits begin, as is also seen from other sources.

Pests and plagues are not very often reported from East Africa. In the Tanga province (Tanganyika) only a weevil *Scyphophorus acupunctatus* Gyll. does much damage. It appears to have been introduced together with its host plant from its original home in Central America. It attacks young plants, weak plants and plants which have flowered. Its main breeding ground is the plant base subsequent to inflorescence ("poling").

Furthermore, it is reported that Sisal suffers from lack of potassium in different regions of East Africa. This point is discussed also in the section regarding the Dutch East Indies.

Dutch East Indies.

In this territory the production of hard fibres is not as important a part of the total output of agricultural products as in East Africa. In 1937, for example, the value of exported fibres amounted only to hfl. 14,897,255 (£ 1,655,250) or 2.3 per cent. out of a total export of agricultural products valued at hfl. 660,000,000 (£ 73,000,000).

The official statistics of area planted and production per province are incomplete, owing to the fact that big concerns, particularly the *Handels Vereeniging Amsterdam*, do not publish figures concerning yields and areas.

In Java there are eleven estates, all in the Surakarta Government which produce Cantala fibre only. In 1937 the area amounted to 6,374 hectares of which 4,816 hectares were in production. The total yield of Cantala was 4,588 metric tons of dry fibres. Quality has shown a high standard, being better than the "Maguey" of the Philippines. Although it has been possible to reduce working costs by exercising the utmost economy, it cannot be regarded as a profitable industry with the prices prevailing in 1938.

The Cantala market is a very restricted one, the demand being much smaller than that for Sisal fibre. Also, the Cantala plant is much more liable than Sisal to certain diseases which result in a reddened fibre. On account of its spiny nature it is also slightly more expensive to harvest, and therefore on big estates its growth has been more or less abandoned.

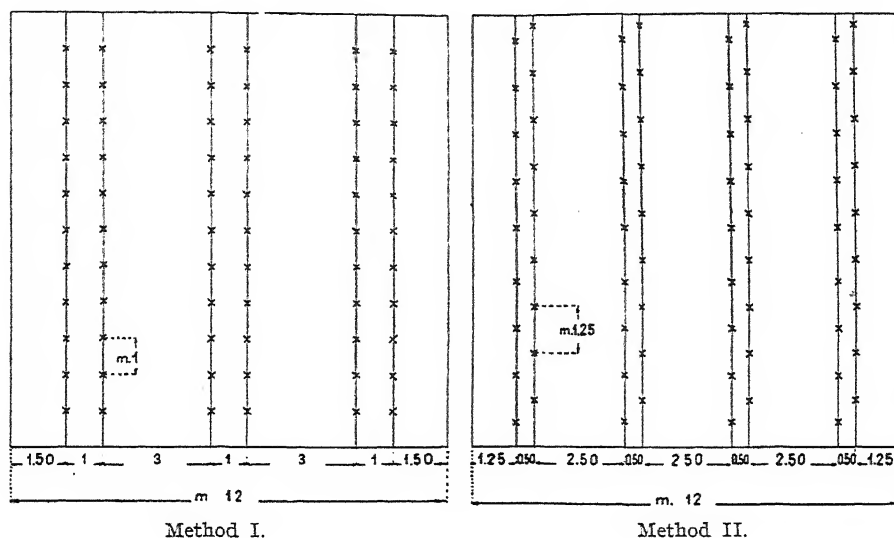
The methods of cultivation on one of the biggest estates of Java are the following. The suckers, or bulbils, or both, as they case may be, are planted in nursery beds, where they remain one year. They are then transplanted to the fields. The fields are divided into blocks, 12 metres (39 $\frac{1}{3}$ feet) wide and of the length of the field. Each block is bounded on either side by a drain about 50 centimetres in width and 60 centimetres deep, these drains leading to a main drain running along the side of each field. The plants from the nursery beds are set out in rows according to either of the methods illustrated in the diagram on the next page.

Method I was formerly almost exclusively used, but is now being replaced by method II, which facilitates cultivation around each plant, particularly after the plantation is one year old.

Harvesting of the ripe leaves commences when the plantation is about fourteen months old, and continues for about seven years. Two crops of leaves are obtained each year, the yield being 3 to 5 tons of fibre per hectare per annum.

Each year potassic and phosphatic fertilizers are applied at the rate of about 150 kilogrammes of potash (K_2O) and 100 kilogrammes of phosphate (P_2O_5) per hectare for Sisal, and the same amount of phosphate and half the amount of potash for Cantala, which is found to

Diagramme II.



possess about half the potash requirements of Sisal. Of course the quantity of each fertilizer applied must vary according to the type of soil in which the plants are growing.

After cutting the leaves are graded in the field according to length.

Leaves above one metre in length are placed in grade A.

Leaves between 75 centimetres and one metre are placed in grade B.

Leaves of between 50 and 75 centimetres are placed in grade C.

Broken and diseased leaves are graded X, Y, and Z instead of A, B and C according to length, those above 1 metre in length being placed in grade X, those between 75 centimetres and 1 metre in grade Y, and those between 50 and 75 centimetres in grade Z.

The Anglo-Dutch Plantations Co. Ltd. of Java reports that their fibre is produced at a cost of about £ 10. 15sh. per ton loaded on the ship. This includes field, factory and transportation costs, to which must be added depreciation and overhead costs. The factory costs are about £ 2. 10sh. per ton so that field and transportation costs must approximately amount to £ 8. 5sh. per ton. The total cost of production will be nearly the same as in East Africa.

In the Lowlands of Java on soils previously used for rice planting, a decided lack of potassium prevails, which gives rise to a peculiar under-development. This lack can be made good by planting green manure-plants, especially the deep rooting *Tephrosia candida*, which is worked under. But this does not work satisfactorily in the long run. Therefore, it is absolutely indispensable to give an adequate treatment with potassium, in order to avoid the typical appearances of disease caused by lack of potassium, and known also in other countries.

It can be seen from experience that in Java the cultivation of Agaves does not pay on estates where cheap transportation of the leaves is not possible. It is also not profitable on estates where, owing to poor soils or cool climate,

the production is less than 3,000 kilogrammes of dry fibre per hectare. It may be profitable on soils with little humus where humus-requiring plants, such as coffee, are not growing, providing these soils are naturally well drained and not more than 400 metres above sea level.

The cultivation of Agaves is most profitable in conjunction with the cultivation of other crops. Then it is not necessary to depend on Agaves alone or to cut more leaves than may be suitable for the best development of the plants in times of low prices. Estates suitable for a large central factory, permitting easy transport of leaves by rail from all parts of the plantation are preferable. It is not profitable to run estates of an area less than 500 hectares owing to the costly plant needed for the extraction of the fibres.

Mexico.

From the Henequén industry of Mexico only meagre information is available, so that it is difficult to judge the situation. Official reports concerning prices, output, shipments, stocks and sales effected are withheld, but from unofficial quarters it appears that the receipts in Progreso coincide very closely with shipments. Whether and to what extents stocks are accumulating inland is not apparent. A bulk sale of 150,000 bales was reported in March 1938, and as shipments go on, it is obvious that large-scale purchases must have been concluded on terms which have not been published. Shipments to U. S. A. ports account for about four-fifths of the quantity exported.

Conferences were held during the past year between the Henequén producers and the American twine spinners with the object of solving common problems; but as no further news has been received, one can merely assume that no general solution was found.

The Henequén industry appears to have had a fate similar to that of the oil industry of Mexico by coming under governmental control, the Sisal estates having been taken over and subdivided amongst the workers. The outcome of this important change may not be apparent for some time. Meanwhile the industry continues to be administered by the *Co-operativa de Henequeneros de Yucatán* under the new decrees.

On the method of cultivation of Henequén in Mexico, only very few reliable reports are available. Dewey some seven years ago gave the following details:—

The Henequén plant is regarded as native in the Yucatán Peninsula, but is not known in a wild condition except as an escape from cultivation. The plantations in Yucatán are all within the tropics and in areas entirely free from frost. The average rainfall in the Henequén-growing areas of Yucatán is about 750 mm. and the lowest recorded temperature is 10° C. Henequén endures drought better than Sisal, but in a protracted drought its leaves also become leathery, making it very difficult to clean the fibre.

Henequén requires a soil with good natural drainage. The plantations in Yucatán are mostly on porous lime rock, through which water from rains quickly sinks to the underground river. There are no streams or natural ponds on the surface in northern Yucatán.

Henequén grows best in the full sunlight. It is necessary therefore, to cut all trees and bushes. The bush and herbaceous weeds and grass are all burnt, and the land is cleared as

thoroughly as possible. Ploughing is practised where possible, but most Henequén plantations are on land too rocky for ploughing and regular cultivation. It is usually necessary to clear the land two to four times each year until the first harvest of leaves, or even oftener in regions of greater rainfall. Afterwards the land is cleared at the time of each harvest.

Particular attention is given to the size of the planted area and the number of plants thereon, for this is the basis of all field labour and estimates of production. Generally 2,400 plants per hectare are planted and suckers are used for planting. The roots and outer leaves are trimmed off. Small holes are dug, often with a pick, in rocky lands, and the bulb is set and partly covered with earth. In rocky land it is often necessary to prop up the suckers with small stones. After planting, the field is inspected at frequent intervals, and suckers that have fallen over are straightened up and those that fail to grow are replaced.

In Yucatán the first leave are cut in the sixth or seventh year, and afterwards usually two crops per year are cut for periods varying from ten to twenty years, or until many of the plants cease to put forward good leaves.

The leaves are cut one at a time with an ordinary butcher's knife. The terminal spine and marginal prickles are trimmed off and the leaves are tied in bundles, 40 or 50 per bundle. One man, with two assistants to trim off prickles, count, and tie the leaves in bundles and carry them to the roadway may cut 3,000 to 4,000 leaves per day.

VII. — Fibre extraction, grading and packing.

In the early times of fibre extraction raspadors were used. These are decorticators, single wheel-machines, where the wheel revolves rapidly in a case, with projections on its circumference, and a smooth metal surface. The workman puts the leaf into the raspador first from one side and then from the other so that the fibres remain. This machine was a great advance on the old process of hand scraping.

Nowadays on the big plantations completely automatic machines are used. The leaves on arrival at the factory are placed on endless-chain carriers, which convey them to the specially constructed decorticators, where they are drawn through two narrow passages, each bounded by a rapidly revolving solid wheel, with projections on its circumference and a smooth metal surface. The two wheels are on opposite sides of the machine, and revolve in opposite directions. In its passage between these wheels and the metal surfaces each leaf is scraped and the soft tissues removed, first along one half and then along the other. The fibres are washed immediately after each scraping process by a strong jet of water, which effectively removes the cortical tissues. This water containing bits of fibre and pulp, is then led in channels from the machines.

The fibre, on passing from the decorticators, is placed in centrifugal machines, where it is further washed by means of a jet of water which plays on the fibre for three minutes after the machine has been set in motion. The machines continue running for six minutes after the jets of water have been stopped. This removes excess of water from the fibre.

On completion of the washing process, the fibre is dried in large drying chambers through which steam pipes pass. Each drying chamber is also provided with a fan for the purpose of keeping the dry air in circulation.

In the dry, hot countries the fibres are mostly dried in the open air exposed to the sun, this having a good bleaching effect on the fibres.

The dried fibres are then beaten by hand labour on wooden bars supported about one metre above the ground or brushed by brushing machines constructed like the single-wheel decorticators having, in place of the projections, brushes on their circumference. These operations free the fibres from the remnants of cellular tissue adhering.

The fibre is then graded into three classes according to length, No. I class comprising lengths over 1 metre, No. II class comprising fibres of between 75 and 100 centimetres, and No. III class those of 50 to 75 centimetres.

Besides these there exists another class known as "tow". This contains short ends produced in the process of trimming the tufts of fibres during the grading operation. In this class is also graded the fibre cleaned from the bagasse.

The fibres ready for delivery to the trade are pressed into bales, containing 400 pounds or 200 kilogrammes each. The bales are fastened by thin strong wires without cover-mats.

VIII. — Recent scientific research-work.

Although the Sisal plant is outstanding in many respects as a fibre producer, the possibility always exists that more profitable varieties may be found or may be obtainable by breeding. *Hindorf* was one of the earliest writers to draw attention to this possibility, and also advocated intensive selection from among the established plantations in East Africa. But historical and cytological evidence indicates that *Agave sisalana*, in East Africa and probably universally, is a clone, i. e. the vegetatively propagated offspring of a single original plant. It is the general experience that selection within a clone does not lead to any great improvement. *Hindorf* sought diligently for seeds of this species, and is the first to record the production of fruits and seeds on cut poles.

Breeding.

Breeding experiments with Agaves were started at Amani (Tanganyika Territory) in 1929. Among the desirable characters of a fibre Agave are:

- (1) High yield.
- (2) Good quality of fibre.
- (3) A hardy and adaptable plant.
- (4) A plant easily and cheaply cultivated.

I. — Yield.

Yield is determined by the number of leaves produced and the amount of fibre in the leaf. The number of leaves produced during the life of the Sisal plant does not appear, from the limited data available, to vary greatly between individual plants grown under similar conditions. The number and size of the leaves produced are interdependent and largely influenced by environment.

For increased production, therefore, a more rapidly growing form with a higher total production of heavy leaves is indicated. In naturally occurring species prolific leaf production is usually concomittant with small leaves, but this does not mean that a combination of the characters for numerous and large leaves is unattainable.

In the Sisal Experiment Station of Ngomeni an experiment is in progress to compare different species of Agave.

Agave angustifolia Haw. was found to be a species outstanding for rapidity of growth and total leaf production. The plants under observation at Amani put on new leaves at approximately three times the rate of *Agave sisalana*. However, the leaf is short, light and contains only a small weight of fibre. The leaf margin is spiny, the fibre very fine. The maximum number of leaves produced by a plant of this species during its productive life is 510, compared with a maximum for Sisal of 230 under similar conditions. It is sexually fertile.

It is the aim of the selectionists to combine the prolific properties of *angustifolia* with the good and abundant fibre production of *sisalana* by cross-breeding. Successes are already being obtained.

Agave amaniensis Trelease and Nowell (Blue Sisal). The origin of this species is obscure, but it is said to have been imported from Berlin Botanical Gardens before the War, and was found growing under heavy shade in the Amani plantations. Producing a long heavy leaf with a non-spiny margin and containing a very fine fibre, this species is most promising. A sample of the fibre has been examined in a London laboratory. From the data obtained, it follows that a smaller weight of *Agave amaniensis* fibre would be required than of Sisal for rope of the same size, and the former fibre would be more economical. It is also somewhat lighter to handle. In consequence of its sexual fertility, a large number of seedlings have already been raised. These show segregations of forms with spiny and non-spiny margins.

■ Besides these two most promising species, many others – totalling 88 species and varieties – are grown in Amani and a great number of cross-breeds are in progress.

The Sisal grower would like an improvement in the proportion of fibre to leaf weight, but little indication is available that this can be obtained with any of the species till now under observation. In most species of Agave, the proportion of fibre is about the same as for Sisal. In Java a new species of Agave has been found which does not develop a flower stalk; it has as yet produced 600 leaves per plant.

2. — Good quality of fibres.

The fibres derived from Agave species form the conducting and supporting tissue of the leaf. The distribution of the fibres in the leaf tissue does not in general vary greatly in any of the species examined.

The general standard of quality of common Sisal fibre is considered quite satisfactory by the consumer for the purposes to which it is now put. Length, colour and strength are the main points considered in marketing. The Imperial Economic Committee in England points out that the absorption of supplies

depends largely on finding extended uses for this kind of fibre. From other sides it is stated that the future policy of the grower must be directed towards producing finer fibre. Therefore, a good deal of attention has been given to the conversion of Sisal fibre into a material suitable for fine spinning, in order to replace the softer fibres used in commerce. In the breeding programme, an important place has been given to the physical qualities of the fibre.

Colour of the fibre is connected with clean decortication. Leaves containing very fine fibre seem to be more difficult to decorticate cleanly, but this may be only a matter of mechanical adjustment and not a serious difficulty.

3. — *Hardy and adaptable plant.*

The Sisal plant is cultivated over a wide range of conditions. It is adaptable and singularly free from attack by serious pests and diseases. Only one species, the *Agave ingens*, appears to be very susceptible to attack by the Sisal weevil. Another, the *Agave Lospinassei*, is liable to diseases which are said to be due to soil deficiencies, banding disease, leaf scorch etc., susceptibilities to be looked for by the plant-breeder since they may be a serious drawback in otherwise promising types.

4. — *Good cultivable plant.*

The presence of spines on the leaf margin is a great disadvantage in cultivation. Plants with marginal spines take much longer to cut and are more difficult to cultivate than those without. The breeding of stable forms with non-spiny leaf margins is of great importance. The absence of marginal spines in *Agave sisalana* is not an immutable character, and *Agave amaniensis* (blue Sisal), typically a non-spiny form, occasionally produces bulbils and suckers with marginal spines.

Morphology of fibres.

Further investigations into the morphological, histological and mechanical properties of Agave fibres are being carried out in Amani. Nutman, plant physiologist of Amani, has given many details which may be found in the « Empire Journal of Experimental Agriculture » 1937 vol. V, pp. 75-111.

From his investigations it is learnt that fibre-fineness is only a question of species and not of leaf length. In view of the uncertainty as to the requirements of spinners, certain planters have cut their leaves while still short or have deliberately planted Sisal on areas where conditions give rise to a short leaf with the intention of producing a finer fibre at the sacrifice of length. The results show that this course will have little of the desired effect. If fineness is to be regarded as a desideratum, it can more readily be obtained by planting *A. amaniensis* or *A. cantala* which will produce fibres which are markedly finer than the fibres of *A. sisalana*.

The leaf of *Agave amaniensis* also contains many more and longer fibres than does *Agave sisalana*, and the proportion of mechanical to "ribbon" fibres is twice as great in the former.

Grading problems.

The experiments of *Nutman* have considerable bearing on the problems involved in the grading of the finished commercial product.

Till recently little information has been available on the fibre as it exists in the plant, as it is commercially shipped or as it passes through the various stages of manufacture. As a natural result, the personal opinions of both the producer and the consumer have become elevated to the rank of dogma.

Before considering grading in detail, it is advisable to assess the range of leaf-length which is normally obtainable on a well-run commercial estate. An adequately representative selection of the leaves to be measured can easily be obtained by taking leaves at random from the rapidly moving belt on which they are carried to the decorticator. Frequency distributions of leaf length proved to be from 45 to 155 centimetres.

As these leaves pass into the decorticator at random and as in each leaf the range of the fibre is from zero to the whole length of the leaf, it is obvious that the hank being bundled at the exit end of the decorticator contains fibres of the most different lengths. An aggregate of separate hanks passes through the handling processes, and the individuality of the hanks of each leaf is lost.

But also, if the leaves are graded according to lengths, and if each grade of the commercial product is fibre produced from a leaf of a given minimum length, each leaf contributes its complement of long and short fibres to the final commercial product.

However, a recent tendency has arisen to try to grade Sisal fibre on the basis of a minimum fibre length. The initiative in this direction has apparently come from the spinners, who claim that a minimum fibre length of 1 metre ($3 \frac{1}{4}$ feet) for No. 1 fibre is necessary for efficient manufacture. This may well be true, but there does not exist any evidence on which this statement is based, nor does any attempt appear to have been made to confirm it by experimental means. It is quite certain that, at any rate up till recent years, such a material has not been prepared. In the absence of evidence as to the desirability of such a product, the necessity for grading on the new basis will depend on the state of the markets and the firmness or otherwise of the buyers' demands for a product of which they have, as yet, no experience.

It may be possible to combine grading on the basis of a minimum fibre length with the process of decortication. But this would prove uneconomical on most estates on account of the big percentage of waste produced in this way. Thus, it does not appear probable that the majority of Sisal-growing areas will find it possible to grade on a basis of a fairly high minimum fibre length unless some other Agave is substituted for *Agave sisalana*. The use of *Agave amaniensis* may conceivably solve this problem, since for a leaf length of 180 centimetres the waste would be less than 30 per cent. grading on a 90 centimetres minimum length. This length of leaf is, so far as our experience with this plant goes, likely to be obtained under the conditions prevailing in most of the Sisal-growing areas in Tanganyika.

It should, in addition, be noted that the longer fibres are also the coarser ones in any leaf, so that by removing the shorter fibres a coarser product will result. The future will decide whether a coarse, long uniform product is to be preferred to the fibre as at present shipped.

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INTERNATIONAL CHRONICLE OF AGRICULTURE

BRAZIL

Brazil's balance of trade in 1938 was a favorable one, but the surplus of exports was not great. Imports and exports amounted to 32,712,000 and 32,993,000 gold pounds respectively, giving a surplus of exports of 281,000 gold pounds.

Brazil continues to follow the two principal aims of her agricultural policy:—no longer to devote herself exclusively to the one product, coffee; and to replace her former policy of maintaining coffee prices by a new policy of free competition in world markets and of increasing home consumption to the maximum, so that only so much need be exported as will secure the foreign exchange needed for the payment of the external debt.

Coffee market.

On December 31, 1938 the first year of the new system of free competition came to an end, and the export figures for 1938 have been very much as expected. As the following figures show exports reached the highest figure for the last five years:—

1934	14,146,879	sacks of 60 kilogrammes
1935	15,328,791	» 60 »
1936	14,185,506	» 60 »
1937	12,122,809	» 60 »
1938	17,208,088	» 60 »

Of the last ten years only 1931 was able to show higher exports than 1938, 17,850,872 sacks having been exported in that year. The 1938 figure would also certainly have exceeded the 1931 figure, had it not been for two factors, one of which tended to lower the 1938 figure, the other to raise the 1931 figure. In 1938 U. S. A. dealers, not wishing to end the year with large stocks, reduced their purchases in November and December; whilst in 1931 an agreement between the *Conselho Nacional do Café* and the "Grain Stabilisation Board" arranged exchanges of North American wheat against Brazilian coffee, which naturally increased the exports of the latter product considerably.

The policy of free competition on world markets, which has resulted in the selling of coffee at lower prices, has not, however, had any unfavourable effect on the trade balance, because the lower level of prices has been compensated by the greater volume of sales. In 1938 5 million more sacks were sold than in 1937 instead of being burnt, and these 5 million sacks gave work to both the land and sea transport services, paid taxes, earned commissions, and helped towards the regaining of markets lost by the previous policy of high prices.

Cotton market.

The second place in Brazil's agricultural is now occupied by cotton. The last crop may be reckoned at 433,500 tons, of which 200,000 were produced in the State of São Paulo, 130,000 tons in the cotton states of the north, and the remainder in the southern states other than São Paulo.

For the first two months of the present year prices have remained at the average level of last year, that is to say varying from 45 to 50 milreis per arroba. These prices are low for the world market, but they are remunerative for Brazil where the costs of cultivation and of harvesting are low.

Being closely bound to the world market Brazil is affected by the great U. S. A. market. The restriction of sales in the Brazilian market, although less pronounced than in the U. S. A., has been rendered inevitable by the situation of the world cotton market. The great stocks of cotton accumulated in the U. S. A. have their effects also on Brazil. However sales have been increased to 280,000 tons, the principal buyer being Germany with 80,000 tons, then Japan with 60,000 tons, Britain with about 40,000 tons and France with 28,000 tons, the remainder having been taken by other European countries. These exports had a value of £ 14,000,000.

The increasing importance of cotton in the Brazilian economy has also been the cause of the extension of the cotton area in São Paulo State. In that State the new movement towards polyculture was specially necessary, as previously the production of coffee had absorbed almost all its energies. At present, as we have seen, it is the main area for cotton production and cotton export, almost all of the German purchases

of cotton being from São Paulo State. Whereas in 1933 it only exported 50,000 tons, in the succeeding years the cotton exports of São Paulo have been as follows:—

1934	62,670 tons
1935	56,911 "
1936	132,424 "
1937	152,323 "
1938	200,000 "

The value of the exports in this last year amounted to about 700,000 contos, so that if to this are added the 140,000 contos from the by-products of cotton (oil-cakes, seed and other residues) a total of about £ 10,000,000 is obtained. This figure for the cotton exports of the State of São Paulo represents 71.43 per cent. of the total value of Brazil's cotton exports in 1938, which was about £ 14,000,000.

Sugar market.

On December 31, 1938, the production of refined sugar for the season 1938-39 reached 9,265,365 sacks, which was the highest production for the last four years, as the following statistics of production show:—

1935-36	9,150,648 sacks of 60 kilogrammes
1936-37	8,710,320 " 60 "
1937-38	9,247,115 " 60 "
1938-39	9,265,365 " 60 "

The situation in the six sugar-producing States in 1938-39 has been as follows:—

Pernambuco has produced 2,869,419 sacks, which was more than in the two previous seasons when production amounted to 1,817,651 and 2,229,113 sacks respectively. This abundant production was due to the excellent atmospheric conditions which were very favourable for the cane.

Alagoas has produced 790,207 sacks, and thus exceeds the productions of 1936-1937 and 1937-38 which were 515,340 and 603,163 sacks respectively. The high production was due to the same causes as in Pernambuco.

Sergipe has a lower production than in previous years—only 357,616 sacks as against 447,825 and 437,302 sacks in 1936-37 and 1937-38 respectively. The decrease was due to a reduction in the area cultivated and also to the bad atmospheric conditions.

Bahia showed a decline in production, for the same reasons as Sergipe, from 451,265 and 487,888 sacks in 1936-37 and 1937-38 respectively to 384,201 sacks in the current season.

Rio de Janeiro and *São Paulo* are the most important sugar-producing states of the south, production being so great that restrictive measures have become necessary. For Rio the quota was fixed at 2,016,916 sacks and the actual production was 1,977,780 sacks, but this slight deficit of 41,136 sacks does not suffice to alter the situation. For São Paulo the quota as fixed by law was 2,073,241 sacks, but it was exceeded by 124,596 sacks as production was 2,197,837 sacks. São Paulo is the second sugar-producing state of Brazil and would be the first, were it not for the restrictions on production imposed by law. These figures show the success of the new movement towards polyculture, for São Paulo used to produce almost nothing but coffee, whereas now it adds to the national wealth by its production of sugar and cotton.

The Institute of Alcohol and of Sugar, which controls the production and consumption of the latter commodity, has succeeded in stabilising prices, which now fluctuate round 45 milreis per sack of 60 kilogrammes. To achieve this result, the Institute each

year fixes the area which must be cultivated in order to satisfy the demands of consumers; if there are surpluses it has a special scheme for dealing with them, putting aside a part for the years of low production and disposing of the remainder in foreign markets.

Fruit market.

The great improvement in methods of cultivation and the winning of new markets has resulted in an extension of fruit production within recent years, and now a part of the production is exported.

Citrus fruits. — The official production figures of these fruits show the growth of production and exports from 1932 to 1937-38:—

	Production (Tons)	Exports (Barrels)	Exports (Contos)
1932-33	700,000	2,544,258	54,894
1937-38	1,480,000	4,970,858	123,858

Methods of production are becoming ever more intensive, the area of cultivation is extending, the different varieties are being subject to selection and at the same time the greatest care is being devoted to the transport of the product. A refrigerator of great capacity has been set up in the port of Santos, and the ships which transport the product have been supplied with the most up-to-date refrigerating plant. In 1938 the United Kingdom took about 51 per cent. of the citrus fruits exported from Brazil (as against 23 per cent. of those from Argentine).

Bananas. — The cultivation of bananas is making as much progress as that of the citrus fruits. The statistics are as follows:—

	Production (Tons)	Exports (Tons)	Exports (Contos)
1932-33	908,000	157,000	98,000
1937-38	1,517,000	225,000	150,000

Among the purchasers of Brazilian bananas the Argentine occupies first place, taking 74 per cent. of Brazil's exports, followed by the United Kingdom with 17 per cent. and Uruguay with 7 per cent. Since the banana is a very perishable commodity exports on a large scale are hardly possible without the use of the most modern refrigeration plant.

Wheat market.

Brazil imports the wheat and flour needed for home consumption, but has recently started a campaign to decrease these imports as much as possible. Wheat imports now represent about 20 per cent. of total imports.

Last season's harvest, which was about 1,700,000 quintals, only covers 15 per cent. of consumption requirements, and it will be necessary again to import the usual quantity of 10 million quintals in order to have the 12 million quintals needed to satisfy consumption requirements.

Agricultural credit.

On December 23, 1938 three important Decree-laws, Nos. 1001, 1002 and 1003, were issued regulating agricultural debts. The importance of these Decrees is not, however, merely economic and does not lie only in the high amount of these debts, but is also juridical, because they depart from legal principles till now in force in almost all countries.

Decree-law No. 1,001 prolongs the moratorium on agricultural debts established in 1937 till December 31, 1939, and clearly defines the class of agriculturalist able to benefit from this Decree. To counter-balance the effects of the moratorium on payments, Decree-law No. 1,002 authorises the Bank of Brazil to issue mortgage bills at 5 per cent., negotiable on stock exchanges, so that it may obtain the funds to grant loans with mortgage guarantee to agriculturalists in order that the latter may be able to pay their debts contracted previous to 1937. Debtors will be entitled to loans up to 75 per cent. of the total of their previous debts.

The third Decree-law, No. 1,003, enables the Bank of Brazil to grant certain advantages in respect of agricultural mortgages and to protect the mortgaged property of agriculturalists.

FRANCE

Since the beginning of December 1938 the position of the franc has improved, not only in relation to sterling, but also in relation to the dollar and to gold.

At the beginning of January 1939 the Bank of France was able to lower its discount rate from $2\frac{1}{2}$ to 2 per cent.

The tendency for the internal price level to rise persisted up to February 1939, since when, however, prices have slightly weakened. Thus the weighted general index of the wholesale prices of 126 commodities prepared by [the *Statistique Générale de la France* (base 1913 = 100) rose by stages from 664 at the end of October 1938 to 689 at the end of January 1939, then falling slightly to 683 by the end of March. Yet despite this slight improvement of the franc in relation to foreign currencies and this slow but steady rise of internal prices the difference between French prices and foreign prices remained sufficient to stimulate exports so that these have shown a favorable tendency. This stimulating action, however, favours industry rather than agriculture, because French agriculture in general is not for export. Nevertheless, French agriculture is in a good position in spite of various signs that the risks of over-production may become serious.

It is indeed clear that the cereal harvests were very good. Wine production in the metropolitan area nearly reached 58 million hectolitres as against 51 millions in 1937. Taking account of the Algerian production and of the accumulated stocks the total quantity of wine for marketing exceeds 87 million hectolitres, to which must further be added the imports coming from Tunisia, that is to say about 1 million hectolitres. Among the chief agricultural products sugar beet is the only one of which the production showed a decline in 1938 as compared to 1937. The frosts of December 1938 destroyed some of the wheat in the ground. The health of the live-stock has improved, and foot and mouth disease is clearly on the decline.

Yet in spite of this abundant production, the prices of the main agricultural products have remained very firm. The weighted index of the prices of 39 agricultural products and foodstuffs calculated by the *Statistique Générale de la France* (base 1913 = 100) was 688 at the end of January 1939 as against 634 at the end of January 1938 and 646 at the end of October 1938. Admittedly, at the end of March there was a weakening to 671, but even so the index was above the March 1938 figure of 620. The index of the prices of the 24 products of vegetable origin only rose slightly from 628 at the end of October 1938 to 635 at the end of November, and more noticeably to 656 at the end of December 1938 and to 668 at the end of January 1939. By the end of March it had weakened to 660.

Wheat prices, which are rigidly fixed by the Wheat Office, now show only a steady rise throughout the season. In comparison to the previous season wholesale prices of wheat showed a rise, but owing to the incidence of various taxes the prices actually received by the producer have fallen. As regards the secondary cereals, they continued to fall except in December 1938 and January 1939, when they recovered somewhat. Maize prices also showed an upward trend, but this is mainly an imported commodity. Wine prices after having slightly weakened in January 1939 recovered in February, whilst in March they kept almost steady. Sugar prices are rising owing to insufficient production. The price index of animal products rose sharply from 675 at the end of October 1938 to 706 at the end of November. The rise from 706 in November to 729 in December 1938 must be considered as mainly a seasonal phenomenon—even though the index for December 1937 was only 671. This index was very much affected by the prices of the milk products which have risen considerably because of the lessened milk production resulting from the intense cold. It slightly weakened to 721 at the end of January 1939, fell back to 683 for the end of February, but then rose a little in March to settle down at 690 at the end of the month. March also saw quite a noticeable recovery in meat prices.

Commercial policy.

France has concluded a new agreement with Norway. Her commercial treaty with Siam, signed on December 7, 1937, entered into force on March 7, 1939; it contains the most favoured nation clause ⁽¹⁾. The commercial treaty between France and the U. S. S. R. has been prolonged till December 31, 1939 ⁽²⁾, and the commercial agreement between France and Venezuela has been renewed.

On December 6, 1938 France concluded an agreement on commercial payments with Bulgaria to replace that of July 6, 1936. This new agreement entered into force on January 1, 1939. It can be denounced at any time on the giving of three months notice.

The list of goods of Bulgarian origin which were and continue to be admitted at the minimum tariff rate, as stipulated in the Franco-Bulgarian Convention of October 22, 1925, was completed by a Decree of January 17, 1939 ⁽³⁾. Of the products of interest to this report the original list included cereals, brans, cheeses, the oil-yielding crops and oil-cakes. The recent decree has added wheat, spelt and maslin flours meat and butter.

For some years the trade between France and Yugoslavia has been declining to such an extent that in 1938 France's share in the foreign trade of Yugoslavia was only 2 per cent., her purchases in Yugoslavia in that year having only amounted to 100 million francs with her sales at a correspondingly low level. Yugoslavia indeed owing to transfer difficulties had to adopt severe measures of exchange control, and does not import from any country more than she exports to it. Thus it was that in 1938 owing to lack of means of payment she had considerably to reduce her purchases of French goods. But the increase of Yugoslav imports into France meets with the fundamental difficulty that Yugoslav prices are in general higher than French ones.

France has negotiated a commercial treaty with Yugoslavia which was concluded on February 11, 1939, and the French government has taken the necessary steps by the Decrees of March 31, 1939 for the putting into effect of this agreement ⁽⁴⁾.

⁽¹⁾ *Journal Officiel*, March 7, 1939. — ⁽²⁾ *Journal Officiel*, December 31, 1939. — ⁽³⁾ *Journal Officiel*, January 18, 1939. — ⁽⁴⁾ *Journal Officiel*, April 1, 1939.

The terms of this agreement should allow of a considerable increase in the trade between France and Yugoslavia. By opening wider the doors of the French market to Yugoslav products exports of French goods to Yugoslavia should be increased, and at the same time the transfer of French financial credits in Yugoslavia should be rendered easier. To close the gap between French and Yugoslav prices France grants to Yugoslavia the tariff rebates determined on at the Stresa Conference. These rebates, the value of which does not exceed 8 million francs, have the sole aim of facilitating the more complete utilization of the quotas granted to Yugoslavia.

The imports of salted pork of Yugoslav origin will be exempted from the special quota tax up to a limit of 1000 quintals. A special system has been set up to facilitate the export of quotas of maize by Yugoslavia, a system which has also been extended to some other Danubian countries. All these measures are so framed as not in any way to infringe the protection accorded to the agriculture of France or her colonies ⁽¹⁾.

At the same time efforts will be made systematically to increase French purchases in Yugoslavia by means of a better organisation of the contacts between the two markets, a task to which the Franco-Yugoslav chamber of agriculture and chamber of commerce will especially devote themselves.

On their importation into France young wethers and ewes of Yugoslav origin, as also the fresh and the frozen meat of such young animals, will be subjected without any reduction to the duties of the French minimum tariff. However, where such animals result from a crossing with breeding animals imported from France and entered in the pedigree stock-books a rebate will be granted equal to the difference between the normal duty of the minimum tariff and the duty of 102.50 francs per 100 kilogrammes within the limit of the quota available for Yugoslavia. Whilst as regards the imports of fresh, chilled and frozen meat of young wethers and ewes resulting from a crossing with breeding animals imported from France and entered in the pedigree stock-books, a rebate will be granted equal to the difference between the normal duty of the minimum tariff and the duty of 138.40 francs per 100 kilogrammes. These clauses relating to young wethers and ewes resulting from a crossing with breeding animals imported from France and to fresh, chilled and frozen meat derived from such animals are identical with those to be found in the agreement of December 13, 1937 between France and Poland. Also the recent exchange of letters of March 31, 1939 between France and Romania ⁽²⁾ contains similar clauses as too does the agreement of February 4, 1939 between France and Hungary ⁽³⁾.

France has concluded an agreement on commercial payments with Yugoslavia ⁽⁴⁾, this agreement to replace the similar agreement of December 14, 1937 and to enter into force on March 1, 1939.

By the terms of this agreement the Yugoslav Government promises to grant without delay and not subject to any restrictions the permits necessary for the import and for the making of payment for the goods of French origin figuring on the list of goods subject to import control in Yugoslavia, this promise to hold good as long as the value of French (including Algerian) sales in Yugoslavia does not exceed 60 per cent. of the value of Yugoslav sales in France. In the month following on each quarter the balance of trade between the two countries will be examined, for which purpose the statistics used will be those of Yugoslav imports on the one side and French and Algerian imports on the other, account being taken of the exchange fluctuations which have taken place in the

⁽¹⁾ For the colonies see the Chronicle on the French colonies. — ⁽²⁾ *Journal Officiel*, April 26, 1938. — ⁽³⁾ *Journal Officiel*, April 30, 1938. — ⁽⁴⁾ *Journal Officiel*, March 3, 1939.

period. A mixed committee of French and Yugoslav civil servants will be appointed to see to the good working of the payments agreement and to devise all possible measures for the furthering of commercial relations between the two countries, whilst at the same time seeing that the agreed proportions are maintained. In principle this committee is to meet every six months and whenever else the two governments think necessary.

France has also concluded a commercial agreement with Sweden, to regulate the commercial relations between the two countries for 1939. The concessions granted to France for the year 1938 by the previous agreement will be maintained and on certain matters extended, in particular as regards the export of wines and liqueurs.

France has also concluded payments agreements with Poland and Romania.

The agreement with Poland, concluded on March 27, 1939, entered into force on April 1 ⁽¹⁾. In principle it is valid for the year 1939, but may, however, be denounced during the course of the year on the giving of fifteen days' notice. The total value of the French imports into Poland effected according to the terms of the trade agreements between the two countries, is fixed at 80 per cent. of the total of Polish exports to France as calculated from the Polish export statistics. The effective maintenance of this relationship will be assured by a special committee composed of delegates of the two governments which will decide on the adjustments to be made each three months from the experience obtained in the preceeding three months.

The agreement with Romania concluded on March 31, 1939 entered into force on April 8 ⁽²⁾ to replace the agreement on commercial payments of March 8, 1938. It can be denounced on the giving of three months' notice. Commercial payments will be made in free exchange. As from the date of the entry into force of this agreement all sums paid by French importers in settlement of the purchase of goods of Romanian origin to France immediately on receipt will be placed in a French franc account at the National Bank of Romania. As regards the import into France of certain goods of Romanian origin listed in an annex to the agreement, the parties will have the right to arrange compensation dealings against the imports of certain specified French goods into Romania. Both these lists of goods are subject to modification, but that of the Romanian goods imported into France includes the following among the products of interest to this Chronicle:— rye, brewers' malt, gluten, food pastes and meals, live sheep, meats, dead poultry, dead game, the skins and furs of many domestic and wild animals, butter, margarine, edible animal fats, cheeses, many vegetable oils, sugar and molasses, wines, table grapes and fruits.

Romanian exporters will have to cede to the National Bank of Romania a percentage varying according to the commodity exported of the foreign exchange due to them in settlement of the price of the goods imported into France under this system. These percentages are as follows:— 40 per cent. for rye; 30 per cent. for all animal skins and furs except those from hares, rabbits and cats; 25 per cent. for molasses; 20 to 25 per cent. for vegetable oils; 15 per cent. for brewer's malt, food pastes and meals; 10 per cent. for gluten, live animals, meats, margarine, fats, cheeses, sugar, table grapes and fruits. The sums representing the price of goods after deduction of these percentages may be freely transferred to third parties by the exporters concerned at any rate agreed upon by the buyer and the seller. They can only be used, however, in settlement of the purchase of goods of French origin imported into Romania after the entry into force of this agreement. Other commercial payments made by French importers will be placed by the National Bank of Romania to different accounts;

⁽¹⁾ *Journal Officiel*, April 1, 1939. — ⁽²⁾ *Journal Officiel*, April, 7, 1939.

but except for those made in settlement of the purchase of petrol 20 per cent. will be left at the disposal of the Romanian exporters so that they may be able to cede them freely to third parties.

Wheat market.

The Working of the Wheat Office. — The working of the Wheat Office was made easier during the first two years of its existence by the fact that the successive harvests of 1936 and 1937 were very moderate, so that the problem of disposal of excess supplies was not in fact raised during this period.

In the season which began in the summer of 1938 the Office was for the first time faced with the problem of an excess supply. This supply indeed appears even to have exceeded the estimates made by the Office in the summer of 1938 and reproduced in our Bulletin of September, 1938. Hence arose certain difficulties for the financial stability of the Office.

As the Treasury had to make an advance to the Office, the central committee of the Office could not do other than maintain the increase of 50 per cent. on the exceptional tax for the reabsorption of excess supplies which is levied on wheat producers ⁽¹⁾ The base rate of this tax, it may be remembered, had been originally fixed at 12 francs the quintal; with the increase the present base rate is thus 18 francs. Furthermore, it must be remembered that this tax is progressive.

However, the council has reserved to itself the right to restore a part of the tax to the producers at the end of the season if the financial situation of the Office then permits of such a course.

It is to be foreseen that in the coming summer, as a result of the frosts of December 1938, the Office will have to deal with a much smaller harvest than last year.

It was desired to facilitate the resowing of the lands in cases where these frosts had wrought much havoc. The farmers who will be able to show that, between the date of the frosts and April 20, 1939, they purchased seed wheat for purposes of resowing from co-operatives or dealers allowed to effect such sales will be granted exemption, on an amount not exceeding the quantity of wheat thus purchased, from the exceptional reabsorption tax of which we have already made mention ⁽²⁾.

As regards the allocation of quotas for wheat sales in order thus indirectly to limit production ⁽³⁾, this will not be carried out for the season 1938-39.

Attempts have been made to increase the consumption of wheat. The coefficient of extraction has been fixed at 2 points below the specific average weight of the wheats to be ground in each mill. This measure will make it possible at one and the same time to increase the quantity of wheat ground by the mills and to improve the quality of the flours without, however, provoking a rise in flour prices.

Under the auspices of the Wheat Office a national propaganda committee has been set up in order to increase the consumption of bread.

The professional organisation of the milling industry is in close contact with the Wheat Office, with the object of equalising the working capacity of the mills and the production of wheat. Membership of the organisation of the milling industry is open to all individuals, firms or cooperatives in France working at the production of wheat flours destined for human consumption and accepting the statutes of the orga-

⁽¹⁾ See the Chronicle for France in the September, 1938 number of this *Bulletin*. — ⁽²⁾ *Journal Officiel*, March 7, 1939. ⁽³⁾ See the Chronicle for France in the December 1938 number of this *Bulletin*.

nisation. It is governed by an administrative council and includes departmental and regional committees. The statutes were approved by decree on February 10, 1939 ⁽¹⁾.

Imports from foreign countries. — It is well known that France generally imports from foreign countries only hard wheats and seed wheats.

Permits to import hard wheat from abroad are only granted on payment of 16 francs per quintal imported to the Wheat Office ⁽²⁾.

Seed wheat imported before April 15, 1939 will be exempted from customs duty and from all taxes levied for the profit of the Wheat Office ⁽³⁾. The purpose of this exemption is to facilitate the resowing of the wheat lands affected by the frosts of December 1938.

Barley market.

The quota of barley for brewing has been reduced to 5,000 quintals for the first quarter of 1939 ⁽⁴⁾.

Meat market.

The bounty on the export of fat salted pork and on salted streaky and middle cuts has been fixed at 1 franc per kilogramme ⁽⁵⁾.

Sugar market.

The Government has been concerned about the possible effects on the national economy and on the feeding of the people of the deficiency in the sugar production of the current season. It has, therefore, by four successive decrees authorised the importation of four quotas of sugar, of which the first, of 10,000 tons, was the same as for 1938, whilst of the three supplementary quotas one is of 20,000 tons and the two latest are of 15,000 tons each. The licence tax for foreign sugars, which was 22 francs in 1938, will be 20 francs till May 31, 1939 and 28 francs after that date. As regards imports made up till and including June 15, 1939, payment of the licence tax will entitle importers to a transferable delivery receipt. In order to facilitate the accumulation of stocks in the Paris area a repayment of 20 francs per quintal of sugar subjected to the tax will be made to the holders of such receipts who can show that they have placed in *entrepôt* in Paris and delivered to the regulated market an amount of sugar equivalent to that for which they have receipts ⁽⁶⁾. In order to encourage subsequent exports, rebates have also been provided for the holders of such receipts who signed obligations for the temporary admission of foreign sugars ⁽⁷⁾.

Wine market.

The interministerial commission for viticulture has decided on 8 million hectolitres as the quantity of wine which must be reabsorbed in order to establish equilibrium between the quantity of wine on the market and the demand for that wine. 6.5 million hectolitres it was decided should be reabsorbed by distillation, whilst the remaining 1.5 million hectolitres are to be held back from the market.

⁽¹⁾ *Journal Officiel*, February 16, 1939. — ⁽²⁾ *Journal Officiel*, December 28, 1939. — ⁽³⁾ *Journal Officiel*, March 7, 1939. — ⁽⁴⁾ *Journal Officiel*, January 1, 1939. — ⁽⁵⁾ *Journal Officiel*, February 14, 1939. — ⁽⁶⁾ *Journal Officiel*, April 16, 1939. — ⁽⁷⁾ *Journal Officiel*, April 2, 1939.

Sanitary prohibitions.

In order to protect the livestock of the metropolitan area against epidemics and to prevent the import of foodstuffs from unhealthy stock or from stock suspected of disease, the Government has been authorised to prohibit the import of all animals, wild or domestic, which show signs of contagious disease, of all animals, live or dead, which are unhealthy or suspected of disease, and of all products of animal origin, fresh or preserved, which are diseased or suspected of disease ⁽¹⁾.

The import and transit of all cattle, sheep and goats from Switzerland has been prohibited ⁽²⁾.

The prohibition of the import and transit of rodents and their skins coming from Hungary, Romania and Yugoslavia has been suspended ⁽³⁾.

Agricultural credits.

The budget for the financial year 1939 ⁽⁴⁾ provides that the total of the advances which may be allowed by the State to the National Agricultural Credit Bank shall be increased from 700 to 800 million francs.

FRENCH COLONIES, PROTECTORATES AND MANDATES

Some of France's commercial agreements are extended also to her colonies.

For example, the trade agreement which France concluded with Bulgaria on October 22, 1925, as also the agreement on commercial payments which she concluded with the same country on December 6, 1938 and to which we refer in the Chronicle for France ⁽⁵⁾, apply also to France's colonies, protectorates and mandates. Henceforth, products from the French colonies will be assimilated to those coming from France itself, and will therefore receive most-favoured-nation treatment in Bulgaria.

On the other hand, the payments agreement between France and Romania only applies to the metropolitan country and to North Africa ⁽⁶⁾.

Some of the trade agreements recently concluded by France contain special clauses in favour of the products of colonial agriculture. For example, the special concessions granted to facilitate the importation into France of Yugoslav, Bulgarian and Romanian maize nevertheless safeguard the interests of colonial producers. The quotas of maize imported into France from Yugoslavia, Bulgaria and Romania will not be admitted duty-free except when balanced by exports of maize from the French colonies to foreign markets. Thus the maize of the French colonies which can no longer be sold on the home market will be disposed of in foreign markets.

The traditional tariff system of the colonies—one of more or less complete assimilation between colonies and mother country—in principle afforded protection for the same products and to the same extent in the colonies as in the mother country. The result of this policy has been chiefly to encourage the production of just those commodities which undoubtedly compete with those of the mother country. French policy has, however, recently changed, and the guiding principles of her commercial and co-

⁽¹⁾ *Journal Officiel*, January 1, 1939. — ⁽²⁾ *Journal Officiel*, December 10, 1938. — ⁽³⁾ *Journal Officiel*, December 27, 1938. — ⁽⁴⁾ *Journal Officiel*, January 1, 1939. — ⁽⁵⁾ *Journal Officiel*, January 17, 1939. — ⁽⁶⁾ *Journal Officiel*, April 7, 1939.

lonial policy are showing greater flexibility. On the one hand the Government has been led by the pressure of circumstances to take defensive measures against colonial agriculture itself, and on the other hand it is trying to direct colonial agriculture towards products which supplement home agriculture. The sugar producers of the home country and of the colonies have divided the home and the Algerian markets between themselves by agreements which have been officially approved by the Government. A similar agreement has been concluded between the representatives of the oil industries of France itself and of French West Africa, which agreement has been sanctioned by a Decree of April 8, 1938. A committee of semolina producers composed of an equal number of representatives of the home and of the Algerian manufacturers regulates the competition between the home and the Algerian semolina industries. The Government obliges the home industry to use a certain percentage of hard wheat from North Africa, and as this type of wheat is hardly cultivated at all in France the product thus aided is supplementary to French products. French barleys are in little demand for brewing purposes; therefore in order to stimulate the production of malting barley in Morocco this territory has been allocated certain quotas for the import of such barley into France and Algeria free of duty. Efforts have been made to improve the quality and enhance the reputation of the tea from Indo-China. Similarly attempts have been made to develop cotton production in Algeria, in West Africa and in Equatorial Africa, and to stimulate the production of jute and of its substitute, sisal. Bounties on the production of bananas, coffee and rubber have already given excellent results.

The *Conseil National Economique* has recently drawn up a general plan to be carried out over a period of several years for the development of French imperial production. The aim is to replace in the colonies the production of goods which compete with home products by the production of goods which France now has to buy abroad — certain raw materials for industry such as textile materials, fats and woods and certain tropical products such as coffee, tea and exotic fruits. The principal method to this end will be a system of subsidies, which will be financed in the first place by taxes accepted by the producers; but if the producers cannot come to an agreement among themselves or if their contribution proves insufficient, recourse will be had to customs and to export duties. For each main branch of production the *Conseil National Economique* proposes the setting-up of a general committee of producers and traders, composed of delegates from the trade organisations representing the interests of home and of colonial agriculture, of commerce and of the consuming industries, and including an effective representation of the various government departments concerned. All these committees will have a similar constitution and organisation, to be approved by the State.

The report of the *Conseil National Economique* suggests that it would be possible to develop cotton production, especially in North Africa, in West Africa, and in Equatorial Africa, and therefore proposes the granting of bounties on cotton production in those colonies. As regards the oil-yielding crops, it commends the development of the production of linseed in Morocco, not by means of financial support, however, but rather by the aid of the agricultural services; and similarly for Tung oil. As regards ground-nuts the report suggests that efforts be made to improve the selection and to reduce the cost of transport. It also recommends the development of orange and mandarine production. Further, the report deals with the development of the colonial forests, from which the home country already draws a very large part of the wood imported for building purposes and for cabinet-making; and here it chiefly recommends the improvement of transport conditions and the reduction of freight rates, especially for sawn and peeled woods, whilst also suggesting a "users preference" for French and colonial woods.

North Africa.

The economic situation of North Africa is steadily improving. The exports from Morocco of cereals, wines, early fruits and vegetables, and sheep are increasing. However, the exports of agricultural products from Morocco to France and Algeria show a very noticeable decrease, the "open door" policy which applies to Morocco as to the mandated territories naturally favouring trade with foreign countries; Moroccan exports to Germany, mainly of raw materials, have especially increased of late.

Wheat market. — It will be remembered that the various taxes on wheat producers apply to Algeria as well as to the home country.

The measures dealing with the coefficient of extraction of flour, referred to in the Chronicle for France, are similarly applicable also to Algeria.

The minimum percentage of hard wheat from North Africa which the industries of the home country are obliged to use in the production of food pastes, semolina and similar products has been fixed at 80 per cent. as from February 20, 1939 ⁽¹⁾ and at 95 per cent. as from April 1 ⁽²⁾.

Export of cattle from Morocco. — The home country has allowed the import into France and Algeria ⁽³⁾ of a supplementary quota of 7,000 cattle from the French zone of Morocco.

Wine market. — The measures for the holding back and the distillation of wine mentioned in the Chronicle for France apply also to Algeria. Similar measures have been taken in Morocco.

Farm leases and mortgage interest rates. — During the depression in the summer of 1935, decree-laws to decrease agricultural costs had reduced ground rents and the interest charges on mortgage debts by 10 per cent., these measures applying to Tunis as well as to France. Since then the position of the agricultural classes has radically changed, so that these decrees for reducing ground rents and mortgage debts have been abrogated in Tunis as they already were in France.

French West Africa and Togoland.

General price policy. — The policy of price control has been relaxed in French West Africa. Nevertheless the rule requiring the previous consent of the price control committees for rises in prices still holds for certain goods, including various foodstuffs and some commodities necessary for agricultural production such as manures, agricultural machinery and building materials ⁽⁴⁾.

Native saving societies. — In French Togoland saving societies which are quite a new feature among the natives, going back no further than 1937, have been growing rapidly. At the end of 1938 there were already nine societies with 200,000 members.

French Equatorial Africa and the Cameroons.

Customs tariff. — The rates of the customs duties levied on foreign goods entering that part of Gabon which is not included within the Conventional Basin of the Congo have been raised by 7 per cent. ⁽⁵⁾.

⁽¹⁾ *Journal Officiel*, February 17, 1939. — ⁽²⁾ *Journal Officiel*, March 29, 1939. — ⁽³⁾ *Journal Officiel*, February 7, 1939. — ⁽⁴⁾ *Journal Officiel de l'Afrique occidentale française*, January 7, 1939. —

⁽⁵⁾ *Journal Officiel*, January 29, 1939.

Improvement of cultivation. — A Decree of January 17, 1939 ⁽¹⁾ authorises the French Commissioner for the Cameroons to take all measures necessary for the improvement and the protection of crops and live stock in the territories under his authority.

Madagascar.

The colony of Madagascar is henceforth to be self-sufficing as regards the production of sugar. The sugar producers of Madagascar were parties to the agreement of March 1938 concluded between the sugar-producers of the home country and of the French colonies. By this agreement the sugar producers of the home country and of the other colonies had promised not to encroach upon the home market of Madagascar, which was furthermore granted export quotas to the home country and to Algeria. In addition, as from the end of 1938 the importation into Madagascar of sugar of foreign origin was to be prohibited ⁽²⁾.

The cultivation of coffee is developing rapidly in the island. In recent years many coffee trees have been planted, and the area actually yielding coffee rose from about 84,000 hectares in 1937 to about 90,000 hectares in 1938. Rice cultivation is also progressing, and in order to aid this development great irrigation works are being carried out. Rice exports from Madagascar have been increasing and imports falling off; the exports mainly go to France and consist of superior quality rice for human consumption.

Indo-China.

The year 1938 has ended in Indo-China with economic and financial conditions generally very favourable.

The total exports of Indo-China for 1938 exceeded 60,000 tons, as against 45,000 tons in 1937. In 1938 in the single month of December, always a good month for exports, these exceeded 10,000 tons.

The index of wholesale prices of the products of the colony (base 1925 = 100) fell in the later months of 1938, from 106 in September to 98 in December; whilst the general index of wholesale prices (also base 1925 = 100) fell from 121 to 117 over the same period.

However, the only real cause for anxiety at the end of the year lay in the reduction of rice exports and the recent fall in prices of this cereal, which began in October 1938 and became more rapid in November and December. Prices of rice No. 1 at Saigon had fallen by 30 per cent. by December 31, 1938 as compared with those prevailing at the end of September; and between the end of October and the end of December paddy prices weakened by 40 per cent. Maize prices have kept much firmer, having been 8.1 piastres the quintal in October 1938, weakening to 7.8 piastres in November, and recovering to 8.5 in December.

Trade Agreement with Siam. — France has concluded a commercial agreement with Siam regarding Indo-China. This agreement is for a period of five years, renewable by tacit consent.

Rubber. — A Decree of January 18, 1939 ⁽³⁾ provides for the application to French Indo-China of the new rules recommended by the International Committee for Rubber Control in its resolution of March 29, 1938.

⁽¹⁾ *Journal Officiel*, January 25, 1939. — ⁽²⁾ *Journal Officiel*, December 27, 1938. — ⁽³⁾ *Journal Officiel*, January 21, 1939.

Consequently the area of rubber plantations in Indo-China by December 31, 1930 must not exceed by more than 5 per cent. the area already planted. The poor qualities of rubber used to be taxed on export from Indo-China as heavily as the rubber of higher value; hence in order to apply the tax on rubber exports more fairly the tax on the poor qualities has been reduced by 4 per cent. ⁽¹⁾.

Land system. — The Decree of July 21, 1925 effected the unification of the legal status of immovable property in Cochinchina as well as the adoption of the principle of the land register. The Decree provided for the progressive application of the new legislation to all the territories of the Indo-Chinese Federation; this has already taken effect in the French territories of Tourane, Hanoi and Haiphong. The work of surveying is already well advanced, and hence it was thought that the time had come for the application of the land legislation to the whole territory of Tonkin. In that territory landed property was governed by legislation which varied according to the personal status of the holder of the property right, which was not a convenient system. On March 29, 1939 a Decree ⁽²⁾ was issued to apply to immovable property lying within the protected territory of Tonkin and subject to French law. At the same time a legislative act of the protected sovereign applies the same rules to immovable property subject to Annamite law. This simultaneous promulgation of the two texts makes possible in Tonkin, as in Cochinchina, the attainment of a unified legal system for immovable property. Nevertheless Succession is still governed, even as regards immovable property, by the legal status of the individuals concerned, both as regards the form and the object of wills and the status of the heirs and legatees and as regards the devolution of goods and the method of regulating division of the property. But the rights devolving to the various heirs called upon to take up a succession as regards immovable property dependent upon it can only be of the type defined in the above-mentioned texts, that is to say: property, usufruct, use and habitation, long lease, the servitudes and two sureties which creditors may possess on the immovable property of debtors, lien on immovables and mortgage.

The principle of the land register applies to the whole of Tonkin. A landed property service has been set up, responsible for keeping the registers and for carrying out the prescribed formalities for the publication of rights to real property.

⁽¹⁾ *Journal Officiel*, January 28, 1939. — ⁽²⁾ *Journal Officiel*, April 4, 1939.

Dott. VALENTINO DORE, *gerente responsabile*.

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AGRICULTURAL ECONOMICS AND SOCIOLOGY

MONTHLY BULLETIN

OF

AGRICULTURAL ECONOMICS AND SOCIOLOGY

WORLD SUPPLY OF FATS AND OILS ⁽¹⁾

SUMMARY: I. General tendencies of the world trade in fats, oils and oil-yielding raw materials *Developments up to 1914; developments from the War to the beginning of the World Economic Crisis; developments since the beginning of the World Economic Crisis.* — II. Vegetable oils and oil-yielding raw materials: *Volume of output; importance of different oilseeds, world distribution of production; international trade.* — III. Butter. — IV. Pig and beef fats. — V. Marine animal oils: *Production; international trade utilization of these fats and oils.* — VI. The principal importing countries of fats and oils. — VII. Utilization of fats and oils: *Developments in general; consumption of food fats; production of margarine and other artificial food fats.*

I. — General tendencies of the world trade in fats, oils and the oil-yielding raw materials.

Developments up to 1914.

The growth of the present world market for fats, oils and the oil-yielding raw materials, which began in the middle of the last century, was due to the development of a large import area in North-West Europe. The industrial countries of Europe, in spite of increases in their own output of animal fats such as butter, lard and salted fat pork, and the expansion of their cultivation of oilseeds such as rape, flax, and poppy, became less and less able to supply their rapidly increasing requirements of fats and oils for industrial and food purposes. Up to this time international trade in fats and oils had been confined almost entirely to animal fats and olive oil; but now it began to include many different oils and oil-yielding raw materials coming from the most distant countries.

(¹) The Institute recently published a study in two volumes on the production and international trade in fats and oils. The first volume dealt with vegetable oils and fats, the second with butter, pig and beef fats, marine animal fats, the consumption of oils and fats in the importing countries of most importance for the world market, the utilization of oils and fats and the movements of prices. The two volumes appear as Nos. 4 and 5 of the series of publications on the principal agricultural products on the world market, and have appeared in French under the title: *La Production et le Commerce International des Huiles et des Graisses*, and in English under the title *Oils and Fats: Production and International Trade*.

The figures contained in this article have largely been taken from this work. For further details the reader is referred to the work itself and to the regular statistical publications of the Institute (*Monthly Crop Report and Agricultural Statistics* and the *International Yearbook of Agricultural Statistics*).

Even in the first decade of the last century England was being supplied with palm oil from West Africa, coconut oil from Ceylon and sesame and groundnut oil from India. But the supply of oils to Europe from the overseas countries only became of real importance when international trade in manufactured oils was replaced by the trade in their raw materials.

British India was the first great area to export vegetable oil-yielding raw materials such as rapeseed, linseed, sesame seed and groundnut. In the 'fifties the first supplies of copra arrived from the Malay States, East Africa, Ceylon and British India, and of groundnut and palm kernel, as well as palm oil, from West Africa.

The output of oil-yielding raw materials continued to expand both in Western Europe and overseas until about the 'eighties. A fundamental change then began. The cultivation of oilseeds in Western Europe was no longer able to meet the competition of imported oilseeds, and further, as the result of a shift in Western European agriculture to animal husbandry with a view to producing fresh milk, butter and meat, it became more profitable to cultivate root-crops and fodder than oilseeds with their falling prices. The production of oil-yielding raw materials shifted to Eastern and South-Eastern Europe, and especially overseas, which areas were economically, and perhaps climatically, more suitable for their production. The United States, soon followed by other countries, continually expanded its use of cottonseed in the production of oil, which had first been carried on on industrial scale at the end of the 'sixties. In 1867 there were only 4 cottonseed oil mills in the United States; by 1880 the figure had risen to 45, and by 1890 to 119. The output of cottonseed oil rose from 11,340 metric tons (25 million pounds) in 1874-75 to 139,250 metric tons (307 million pounds) in 1890-91 and 328,850 metric tons (725 million pounds) in 1901. Part of this output was exported, but far the greater part was manufactured into lard compound, and in this way large quantities of lard were released for export.

The rapid increase in the output of copra in the Netherlands Indies and the increased exports of groundnut from British India as a result of the cultivation of types with a high yield were also of great importance. Shortly before the turn of the century China began to export sesame seed, cottonseed, rapeseed and groundnut.

Agriculture in Western Europe shifted mainly to the production of butter, which received considerable impetus from the increasing employment of oilcake, hitherto used chiefly as a fertilizer, for fodder. Oilcake was once much more important from the point of view of nutrition than the oil obtained from it, which was used chiefly for industrial purposes. Except for olive oil, the importance of vegetable oils for food purposes declined in Western Europe, butter, lard and salted fat pork remaining the principal food fats.

Butter was produced in greatly increasing quantities, especially in North-Western Europe, while large quantities of lard and salted fat pork were supplied by the United States. Exports of butter from Denmark and the Netherlands increased from year to year. Besides butter, lard and salted fat pork, another product, margarine, was used in increasing quantities. Margarine was at first manufactured almost entirely from animal fat, of which, again, the United States was the principal supplier.

At the turn of the century this movement became more rapid. The industrial population of Europe further increased in numbers and raised its standard of living, so that the production of animal fats could not keep pace with the increasing demand. Exports of butter from Denmark, the Netherlands, and soon also from Australia and New Zealand increased still further. In Western Europe on the other hand, where pig-rearing was more and more directed to the production of meat, the output of pig fat fell off. In the United States also exports of lard had passed their maximum. Thus the margarine industry discovered market possibilities which it had before scarcely expected, and production leaped up. This was made possible chiefly through progress in the manufacture of vegetable oils, which enabled the margarine industry to use these oils in increasing quantities. The margarine industry became one of the most important consumers of vegetable fats and oils. Thus in 1913 the German and Netherlands margarine industries used about fifty per cent. vegetable fats and oils. Nevertheless vegetable oils were still mainly produced for industrial proposes.

In this period not only new areas of production but also new oil-yielding raw materials appeared on the world market. The utilization of oil plants growing wild lost importance as against their planned cultivation. Exports from China increased rapidly after the turn of the century. In 1900 Argentina appeared as another supplier of oil-yielding raw materials, and her exports of linseed soon challenged the position of Russia, who had hitherto been the chief exporter of this product. In 1908 the first supplies of soya bean reached Europe, and within a few years this became one of the most important oil-yielding raw materials on the world market.

The following figures show the expansion in the sales of oil-yielding raw materials. The import surplus of oil-yielding raw materials for the United Kingdom rose from about 770,000 metric tons in 1909 to over 1,500,000 metric tons in 1913; that of Germany from about 600,000 to more than 1,700,000 metric tons; that of France from 640,000 to about 1,000,000, and that of the Netherlands from 140,000 to about 400,000 metric tons.

Developments from the War to the beginning of the World Economic Crisis.

During the War the tendencies mentioned above were interrupted, but soon after they appeared again as strong as ever, so that within a few years the consumption of fats and oils for food purposes in different countries even exceeded the pre-War level. The increased consumption was met first by the growing production and use of vegetable oils, principally tropical, the increased output of butter and later, by the use of large quantities of whale-oil in the margarine industry.

The production of oil raw materials was expanded through more intensive cultivation and an extension of the area under oil-yielding crops in the original countries of production, the bringing into cultivation of new areas, and the cultivation of new oil-yielding raw materials. The trends of prices and output were also much affected by the great progress in the manufacture of oils, especially in hardening, through which the hard, oils, coconut and palm kernel

oil, lost their special position. For example, the progress in production and manufacture fundamentally changed the significance of groundnut oil, which had hitherto been used only in limited quantities for food purposes, and of soya bean oil, which had been used entirely for technical purposes. The margarine and artificial fat industry ultimately came to use only small quantities of fats and oils from land animals. On the other hand these industries also employed, amongst their raw materials, whale-oil, the production of which increased rapidly after the extension of whaling to the Antarctic.

The importance ultimately acquired by margarine production for the supply of food fats can be seen from the fact that in 1929 the production of margarine in Europe was estimated at over 1.1 million metric tons, compared with a butter output in Germany, which has the largest output in Europe, of 350,000 metric tons in the same year, in Denmark, the principal butter exporting country, of 179,000 metric tons, in the Netherlands of 86,000 metric tons, in Switzerland of 15,700 metric tons and in the whole of Europe (excluding Russia) of about 1.4 million metric tons.

Vegetable oils and fats had by then come to be used chiefly for purposes of nutrition; technical improvements meanwhile were enabling industry to reduce its requirements of fatty oils, and replace them by other raw materials.

TABLE I. — *The Supply of Oilcake in certain countries.*
(Thousand metric tons).

Year	United Kingdom	Germany	Denmark	France	Netherlands
Average 1909-13 . . .	1,297	1,391	(¹) 680	344	—
Average 1924-28 . . .	1,415	1,160	921	(²) 411	(²) 661
1929	1,433	1,785	1,130	505	801
1930	1,224	1,511	910	404	510
1931	1,302	1,871	902	517	651
1932	1,285	2,296	639	580	573
1933	1,235	2,051	660	673	662
1934	1,456	1,581	691	633	651
1935	1,648	1,226	765	541	560
1936	1,545	1,158	863	740	578

(¹) Average 1910-14. — (²) Average 1925-28.

The importance of oil-yielding raw materials for food had also increased indirectly. The use of oilcakes for fodder purposes assumed immense proportions, not least on account of the favourable relationship of their prices to those of other fodders; in fact in many countries a kilogramme of protein in oilcake cost less than half or even less than a third of that in other fodders. Without oilcake the large yields of milk and meat of the highly developed animal husbandry in Europe were now inconceivable. The increased use of oilcake for fodder affected indirectly the productiveness of the soil as a result of the increased supplies of

valuable manure, a factor the importance of which should not be underestimated; the areas using large quantities of oilcake for fodder took first place for arable farming in all countries. The strong demand for oilcake led to a temporary preference for oil-yielding raw materials leaving large residues from their manufacture. For this reason among others the soya bean, with an oil yield of 15 per cent., against copra's 60 per cent., was increasingly used.

In this period three new large consumers of oil-yielding raw materials appeared on the world market: the United States, Italy and Japan. Tropical and sub-tropical oils, as a result of their low cost of production, not only competed with olive oil on the world market, but penetrated, as in the case of Italy, into the producing areas. In the United States the use of oilcake for fodder showed a very substantial increase. Besides oil-yielding raw material Japan imported large quantities of oilcake for fertilizer from East Asia.

Developments since the beginning of the World Economic Crisis.

Thus, in every field of fat and oil production, there were great increases in output, stimulated by favourable prices and technical progress. Even without the general economic crisis a reaction was bound to follow; but, as a result of the crisis, it came in an exceptionally sharp form.

Up to 1928 fat and oil prices had been good despite the increasing supply. But in the next few years, while production continued to increase, and at a rapid rate, the fall in consumption extended further and further and included more and more countries as the crisis spread. Prices of oils and fats also started to fall, beginning with those of the products of the tropical and semi-tropical areas. As a consequence there was great competition to sell, in which tropical products and those of purely agricultural export areas were in much the stronger position; for not only did they have the advantages of greater productivity, but they also enjoyed lower labour costs per unit of production.

European agriculture, and especially that of the importing countries of the Continent, saw their herds of milch cows and pigs as well as their olive growing threatened, and they demanded protection against this overseas competition. Consequently in many countries the tariffs were raised or other measures such as the institution of quotas were taken in order to limit imports, and in 1933 and 1934 several countries proceeded to an extensive regulation of their fat and oil market.

The severe nature of the measures taken in the different countries was, however, undoubtedly due to the influence of good fodder harvests, which had affected the output of butter and pig fat very favourably. With the economic recovery and the less favourable harvests these restrictions appeared undesirably strict, and the excessive supply of previous years was followed in 1935 by a temporary shortage. Instead, however, of taking steps to increase their imports, these countries were compelled, or preferred, to use all means to increase their home output. Their aim was to be as independent as possible of foreign supplies of fats. Not only the European countries, but the United States too was unwilling to allow the continuance of the partial shift of their fat supply to im-

* *Ec. 6 Ingl.*

ports from distant countries, which had been developing in recent decades. A partial change in the direction of international trade, parallel with these attempts at greater self-sufficiency in fats and oils, took place with regard to butter, lard and other animal fats and also to vegetable oils and fats, owing to transfer difficulties and bi-lateral agreements.

The attempts to become more independent of foreign countries also extended to cover fodder supplies, so that oilcake tended to be partially replaced by home-produced fodders.

Though the shifts in the production and consumption of fats and oils have greatly influenced international trade in recent decades, they have only been able slightly to modify the highly developed international division of labour in the production of fats and oils. The increased economic activity in recent years has itself shown that while there are still many unused possibilities in most of the importing countries, the limits of self-sufficiency in fats and oils can only be extended with very great difficulty; and the prospects of international trade are much better in this field than as regards most other agricultural products.

II. — Vegetable oils and oil-yielding raw materials.

Volume of output.

The output of vegetable oil and oilcake has more than trebled since the beginning of the century and has about doubled since 1913. During the crisis production remained more or less at the same level, only the further rise being interrupted. With the economic recovery, an increase in production began in 1935 which has been maintained until now. The output of important vegetable oils covered by statistics is computed at 11.2 million metric tons for 1937, against 5.9 million for the five years 1909-1913 (see Table 2).

Importance of different oilseeds.

As Table 2 shows, the development of the output of the different oilseeds has varied greatly. Tropical and sub-tropical production shows the largest increases, and this is easily explained by the great differences in conditions of production and costs. The output of linseed, on the other hand, only rose a little, while that of rapeseed and hempseed actually fell off.

World distribution of production.

Corresponding to these movements of the different crops, the share of the separate world regions in total production has altered considerably. The following figures show the distribution of total production.

Region	Average 1909-13		Average 1935-37	
	In 1000 metric tons of oil	In per cent.	In 1000 metric tons of oil	In per cent.
Europe	691.4	11.8	1,115.7	10.7
U. S. S. R.	517.6	8.8	1,079.8	10.4
North and Central America	1,140.1	19.5	1,300.7	12.5
South America	327.5	5.6	935.3	9.0
Asia	2,437.8	41.7	4,443.2	42.7
Africa	694.4	11.9	1,392.5	13.4
Oceania	43.2	0.7	135.8	1.3
<i>Total</i>	5,852.0	100.0	10,403.0	100.0

TABLE 2. — *World Output of Vegetable Oils.* ⁽¹⁾
(Thousand metric tons)

Product	Average 1909-13	Average 1924-28	Average 1929-33	1934	1935	1936	1937
Cottonseed oil	1,292.7	1,579.6	1,558.0	1,378.0	1,637.9	1,874.2	2,335.8
Groundnut oil	750.8	1,292.1	1,618.6	1,365.1	1,551.4	1,737.4	1,925.8
Linseed oil	937.8	1,262.3	1,184.8	1,176.2	1,133.5	1,246.2	1,104.2
Olive oil	590.5	752.0	849.2	824.0	956.0	740.0	1,060.0
Coconut oil	386.2	801.4	913.7	1,018.8	1,005.7	1,029.0	1,057.2
Soyabean oil	300.0	796.0	899.5	738.0	869.3	869.8	920.0
Palm oil	267.2	454.8	529.3	599.1	716.8	845.9	845.4
Sunflower oil	170.0	502.6	591.8	606.4	574.2	586.5	591.0
Colza and rapeseed oil	579.1	453.2	467.4	451.8	485.0	501.5	495.0
Sesame oil	330.0	322.9	362.1	313.0	362.6	378.8	398.8
Castor oil	68.1	81.4	98.1	91.6	121.3	138.5	147.6
Tung oil	31.6	54.8	62.3	65.3	73.9	86.7	103.0
Hempseed oil	107.0	150.3	100.4	84.0	91.2	86.4	82.1
Perilla oil	—	3.3	8.7	15.3	35.3	62.4	47.3
Brazil nut oil	13.0	14.3	21.2	24.7	33.1	24.0	28.6
Babbassu oil	—	16.4	13.2	6.9	18.9	25.8	28.3
Mustard oil	16.0	11.7	16.6	19.2	22.2	22.5	22.5
Poppyseed oil	10.0	11.6	18.6	17.6	14.8	21.6	22.5
Shea oil	2.0	2.5	5.3	4.5	5.0	9.5	10.0
<i>Total</i>	5,852.0	8,563.2	9,318.8	8,799.5	9,708.1	10,286.7	11,214.1

(¹) The volume of each of the oilseeds is converted into oil by using the coefficient of its average yield. Owing to the lack of data on production, in compiling this table the figures for exports have been used in certain cases such as China (which is particularly important, as she only exports a small part of her output of oilseeds), Brazil for castor oil, Manchukuo for perilla (exports in these two cases representing by far the larger part of output) and quite generally for palm oil and copra.

International trade in vegetable oils and oil-yielding raw materials.

Table 3 shows the export of oil-yielding raw materials and vegetable oils from the principal *exporting countries*. Nearly all the great exporting countries supply the world with a wide range of products, but nevertheless specialize on a few products which make up the bulk of their exports. The following list shows the vegetable oils chiefly exported by the more important producing areas:

<i>Netherlands Indies</i>	Copra and palm oil
<i>Argentina</i>	Linseed
<i>Manchukuo</i>	Soya bean, soya oil and groundnut
<i>Nigeria</i>	Palm oil, palm kernel and groundnut
<i>Philippines</i>	Copra and coconut oil
<i>British India</i>	Linseed, rapeseed, groundnut, sesame seed, sesame oil, castor seed, castor oil
<i>French West Africa</i>	Groundnut, palm kernel, palm oil
<i>China</i>	Tung oil, groundnut, groundnut oil, sesame oil, sesame seed, rapeseed
<i>British Malaya</i>	Copra, coconut oil, palm oil
<i>Brazil</i>	Castor seed, cottonseed, cottonseed oil, babassu, Brazil nut
<i>Belgian Congo</i>	Palm oil, palm kernel
<i>Gambia</i>	Groundnut
<i>Egypt</i>	Cottonseed, cottonseed oil.

TABLE 3. — *Principal Exporting Countries of Vegetable Oils and Oil-yielding Raw Materials* ⁽¹⁾.

(Export surplus in 1000 metric tons of oil).

	Average 1909-13	Average 1924-28	Average 1929-33	1934	1935	1936
<i>Netherlands Indies</i>	143.7	261.5	354.6	395.5	474.5	525.9
<i>Argentina</i>	199.2	476.9	485.0	433.2	580.1	479.4
<i>Manchukuo</i>	—	—	(2) 537.7	590.1	493.7	467.9
<i>Nigeria</i>	164.2	284.0	321.0	349.6	367.7	435.1
<i>Philippines</i>	74.9	235.8	273.8	358.6	319.2	340.1
<i>India</i>	452.5	394.8	379.7	306.1	157.0	299.4
<i>French West Africa</i>	102.2	186.6	176.0	223.1	197.8	259.1
<i>China</i>	273.0	537.8	495.6	184.3	273.6	233.6
<i>British Malaya</i>	—	52.2	67.9	89.0	120.6	111.9
<i>Brazil</i>	9.1	27.1	26.6	41.9	79.2	109.0
<i>Belgian Congo</i>	5.0	50.2	67.2	67.3	87.0	102.8
<i>Egypt</i>	62.4	44.5	41.1	41.1	54.2	46.7
<i>Gambia</i>	17.8	19.2	18.6	21.8	13.3	14.3
<i>Total</i>	1,504.0	2,571.6	3,244.8	3,101.6	3,217.9	3,425.2

⁽¹⁾ The figures in this table include foreign trade in the products listed in Table 2. Trade listed in the foreign trade statistics of separate countries under the heading "other" or "various oils and fats", however, is only included to the extent that further details were given. — ⁽²⁾ Average 1932-33.

The principal *importing areas* are, as Table 4 shows, Europe and North and Central America. In 1937 the net imports of these two regions amounted to about 3.7 million metric tons (average 1909-13 = 1.6 million metric tons), of which about 2.5 million metric tons went to Europe. Europe's own production covered only about 30 per cent. of her needs, and apart from temporary fluctuations, mainly due to the strong influence of weather conditions on the output of olive oil, this percentage has only slightly altered during recent decades, as Europe has generally been in a position to increase her production in the same ratio as her consumption. The largest net imports into Europe occurred in the last few years. In 1937 the import surplus of oil raw materials converted into oil was 2,526,000 metric tons, as against an average of 1,525,800 metric tons for the five years 1909-13. The increase of imports into Central and North America was even greater, the larger part of which, of course, went to the United States. The import surplus of North and Central America rose from an average of 37,100 metric tons for the years 1909-13 to 1,203,000 metric tons in 1937.

TABLE 4. — *Principal Importing Countries
of Vegetable Oils and Oil-yielding Raw Materials* ⁽¹⁾.

(Import surplus in 1000 metric tons of oil).

	Average 1909-13	Average 1924-28	Average 1929-33	1934	1935	1936
<i>Europe</i>						
Germany	492.2	576.1	679.4	699.9	473.2	653.2
United Kingdom	388.4	494.8	496.1	493.4	550.3	564.2
France	318.8	382.4	466.1	475.1	466.5	530.1
Netherlands	98.0	185.5	148.6	139.5	121.5	130.3
Belgium-Luxemburg	70.8	71.0	87.8	92.7	90.2	100.1
Italy	30.2	169.3	153.4	249.0	180.6	98.3
Czechoslovakia	—	38.8	68.3	89.5	86.5	94.4
Denmark	35.5	67.6	68.0	66.4	74.6	80.0
Sweden	27.9	49.2	58.2	60.5	68.1	68.7
Norway	15.0	37.8	39.3	37.4	41.2	42.3
<i>North America</i>						
United States	60.5	603.3	702.3	592.2	953.7	877.4
Canada	(— 41.6)	6.9	41.1	66.8	97.8	94.9
<i>Asia</i>						
Japan	39.2	121.1	138.0	148.5	122.3	126.6
<i>Total</i>	1,618.1	2,803.6	3,078.6	3,210.5	3,326.5	3,460.5

⁽¹⁾ The figures in this table include foreign trade in the products listed in Table 2. Trade listed in the foreign trade statistics of separate countries under the heading "other" or "various oils and fats", however, is only included to the extent that further details were given. — ⁽²⁾ Export surplus.

III. — Butter.

Table 5 shows the trend of butter production in the countries important from the standpoint of world trade. The figures given are, however, only approximate. In many countries factory production is computed fairly accurately, but the material for estimating the production on farms is everywhere rather inadequate. These difficulties lead many countries to limit their production statistics to factory output. In considering the development of this production, therefore, it should not be forgotten that there is a tendency in most countries to increase factory production at the expense of farm production. Thus an increase in the factory output cannot simply be considered equivalent to an increase in the total output of butter.

As the figures show, production has increased greatly in recent decades. From 1925 to 1936 output in the countries treated in the table rose from 2.54 million metric tons to 3.34 million metric tons. The increase in output was particularly marked in Europe, rising from 1.1 to 1.57 million metric tons. This increase was partly due to the increase in the cow population, but much more to the rise in milk yields resulting from improvements in breeding and rearing.

The international trade in butter (see Table 5) has steadily expanded in the last two decades. Of the exporting countries those in Australasia took the greatest share in this increase. Exports from Denmark in the last few years have remained at about the same level as the average for the five years 1924-1928. At the same time the Netherlands, the second most important exporting country in Europe, was able to expand her exports. Exports from Sweden, Latvia, Lithuania, Estonia and Poland have all shown considerable increases in recent years. On the other hand, exports from Argentina have been well below the average for the years 1924-28. The leading exporting country was throughout Denmark with the exception of 1935, in which year the exports from New Zealand exceeded those from Denmark, while in the two following years they remained only a little behind.

The *United Kingdom* easily takes first place among the importing countries. As a result of the numerous obstacles and limitations on imports in the other importing countries her share in total world imports rose from 64.7 per cent. in 1909-13 and 62.2 per cent. in 1924-28 to 67.1 per cent. in 1929-33 and finally to almost 80 per cent. in the years from 1934 to 1936.

Apart from the *United Kingdom*, *Germany* is the only country which still imports large quantities of butter. In 1929 imports into Germany reached 135,500 metric tons, a figure higher than any previously attained. In the following years these imports fell off continually, amounting to only 59,144 metric tons in 1933, but since 1934 they have been steadily increasing again, reaching 92,290 metric tons in 1938.

Of the other European countries, the *Belgo-Luxemburg Union*, *France* and *Switzerland* have reduced their imports to small quantities. In fact since 1935 *France* has had a butter surplus, though this has been small, amounting

TABLE 5. — *Butter Production in different countries.*
(Thousand metric tons).

Countries	1925	1929	1933	1936	1937
<i>Europe</i>					
Germany	228.0	350.0	425.0	496.0	521.3
France	195.6	219.6	217.6	...	207.8
Denmark	141.0	179.0	185.0	179.9	183.4
Netherlands	75.0	86.7	88.1	101.3	100.6
Ireland	68.0	81.8	(6) 82.2	64.5	62.3
Czechoslovakia	60.0	65.0	66.7	68.8	...
Sweden	32.0	47.9	55.0	66.5	72.1
Belgium . . . . .	...	60.2	69.8	65.0	63.0
Poland . . . . .	...	...	(50.0)	(50.0)	...
United Kingdom . . . . .	...	(7) (48.3)	(47.5)	(48.0)	...
Italy	(2) 50.0	42.1	43.8	...	...
Latvia	23.1	26.0	28.9	31.7	...
Finland	17.9	24.2	23.8	27.8	29.7
Switzerland	12.5	15.7	25.5	27.0	26.0
Austria	(1) 12.0	...	22.0	22.4	...
Lithuania . . . . .	...	3.1	9.9	15.8	17.0
Estonia	7.2	13.7	11.5	13.8	15.9
Norway	2.7	3.8	8.9	11.4	12.1
Hungary	(1) 3.0	4.0	8.2	10.0	11.3
Greece . . . . .	...	...	...	6.0	6.0
Spain . . . . .	...	7.6	7.1	...	...
<i>Total for 21 European countries (8)</i> . . .	1,103.2	1,346.7	1,482.5	1,574.6	...
<i>U. S. S. R. (3)</i> . . . . .	...	77.8	124.3	...	...
<i>North America</i>					
United States	915.0	979.0	1,065.5	976.1	967.1
Canada	122.2	117.4	147.7	165.5	163.1
<i>South America</i>					
Argentina	38.3	27.9	32.6	31.9	30.9
Brazil . . . . .	...	...	(6) 16.3	16.7	...
Chile . . . . .	...	(4) 3.5	...	4.0	...
Peru	1.0	...	...	...	...
<i>Africa</i>					
Egypt	17.9	...	...	...	...
Union of South Africa	9.2	11.6	(6) 13.9	21.1	...
Algeria . . . . .	...	(7) 2.1	...	...	...
<i>Australasia</i>					
Australia (5)	142.4	131.5	190.4	196.7	...
New Zealand	78.5	103.7	151.1	171.0	180.5
<i>Asia</i>					
Syria and Lebanon . . . . .	...	...	...	3.5	7.1
Japan . . . . .	...	...	...	2.5	...
<i>Grand Total (8)</i> . . .	2,537.0	2,846.0	3,258.9	3,336.5	...

Figures in *italics* = factory output only (not total output).

Figures in *parentheses* = very rough estimates.

(1) 1927. — (2) 1926. — (3) Output of the large dairies and the small dairies of the collective farms and consumers' co-operative societies. — (4) Census 1929-30. — (5) Financial year, finishing in the year given. — (6) 1934. — (7) 1930. — (8) In calculating the totals, when there were no figures for a given year, the figures for the nearest year have been interpolated.

TABLE 6. — *World Trade in Butter.*

Country	Average 1909-13	Average 1924-28	Average 1929-33	1934	1935	1936	1937	1938
Exports in 1000 tons								
<i>Exporting countries:</i>								
Denmark	88.7	153.9	161.6	149.8	138.4	146.2	153.0	158.0
New Zealand	17.6	66.9	105.2	132.8	141.7	142.1	151.2	133.0
Australia	35.2	46.3	78.1	111.9	116.5	84.2	83.0	104.1
Netherlands	34.1	43.0	34.2	36.9	46.8	60.2	53.8	50.9
Sweden	20.8	13.1	20.3	23.2	20.3	19.1	23.5	28.6
Latvia	—	8.9	17.2	15.7	16.8	17.3	19.2	23.3
Ireland	—	25.4	22.3	25.8	27.0	26.3	19.3	19.2
Lithuania	—	1.6	8.0	9.7	12.2	14.6	15.1	17.4
Finland	11.9	12.6	15.5	11.1	10.2	14.0	13.9	17.1
Estonia	—	7.9	12.5	10.1	10.8	11.0	13.2	14.7
Poland	—	4.9	8.5	4.4	5.7	10.9	8.1	13.2
Argentina	3.1	25.4	20.5	8.3	6.8	10.3	8.8	7.3
U. S. S. R.	68.2	27.9	27.0	37.9	29.1	23.2	14.6	(¹) 0.2
Other countries . .	45.3	41.3	35.8	28.5	41.1	38.7	39.3	...
<i>Total</i>	<i>324.9</i>	<i>459.1</i>	<i>566.7</i>	<i>606.1</i>	<i>620.7</i>	<i>618.0</i>	<i>616.0</i>	<i>...</i>
Imports in 1000 tons								
<i>Importing countries:</i>								
United Kingdom . .	206.6	261.6	380.3	487.5	481.6	491.8	472.6	479.0
Germany	50.5	96.5	99.5	61.8	71.0	75.4	86.8	92.3
Other countries . .	62.1	74.7	86.7	60.2	63.5	52.2	52.7	...
<i>Total</i>	<i>319.2</i>	<i>452.8</i>	<i>566.5</i>	<i>609.5</i>	<i>616.1</i>	<i>619.2</i>	<i>612.1</i>	<i>...</i>

(¹) January to September.

in 1937 to 2,329 metric tons and in 1938 to 2,314 metric tons. The largest importers after Germany are now the Netherlands Indies (imports in 1938 = 4,330 metric tons), British India (3,118 metric tons) and British Malaya (2,128 metric tons (¹)).

IV. — Pig and beef fats.

The production and sale and particularly the international trade in these fats has suffered exceptionally from the competition of vegetable and marine animal fats.

The *United States* is the leading lard-producing country in the world. In 1923-24 her production reached the record figure of 1,270,000 metric tons. This

(¹) See also Butter Production, Trade and Prices in 1938 in *Monthly Crop Reports and Agricultural Statistics*, April 1939.

TABLE 7 — *Principal Exporting and Importing Countries for Lard.*

Country	Average 1924-28	Average 1929-33	1934	1935	1936
(Exports in thousand metric tons).					
<i>Exporting countries</i>					
United States	352.1	292.0	197.3	44.2	50.9
Hungary	4.1	2.5	8.2	19.3	14.5
Denmark	10.8	19.3	10.7	12.3	12.2
Netherlands	31.3	19.3	7.7	14.8	9.1
Brazil	0.2	2.0	5.4	13.6	8.2
Argentina	0.1	1.0	2.9	7.9	...
Yugoslavia	0.4	0.6	1.5	4.5	7.4
Poland	0.0	0.2	0.0	3.3	5.2
Hong-Kong	—	1.6	2.0	4.3	4.3
China	4.7	3.1	1.2	3.0	2.9
<i>Grand total . . .</i>	403.7	341.6	263.9	127.2	114.7
(Imports in thousand metric tons).					
<i>Importing countries</i>					
<i>Europe:</i>					
United Kingdom	119.8	131.6	142.3	77.8	77.2
Germany	105.6	88.4	41.4	30.3	29.9
Czechoslovakia	33.7	21.4	12.1	8.1	13.9
8 other European countries ⁽¹⁾ . .	72.4	34.3	12.3	5.8	5.5
<i>Total . . .</i>	331.5	275.7	208.1	122.0	126.5
<i>America:</i>					
Mexico ⁽²⁾	24.2	23.9	16.3	...	...
Porto Rico	6.6	9.8	10.1	7.7	11.0
Cuba	42.1	19.8	10.8	11.0	...
<i>Total . . .</i>	72.9	53.5	37.2	(35.1)	(38.4)
<i>Asia:</i>					
Hong Kong	—	0.6	0.7	2.8	3.4
<i>Grand Total . . .</i>	404.4	329.8	246.0	159.9	168.3

⁽¹⁾ Belgium-Luxemburg, Netherlands, Austria, Switzerland, France, Italy, Poland. —⁽²⁾ 1925-28.

was followed by a decline, due at first to marketing difficulties, and after 1933 to Government measures and drought. In 1933, however, output still amounted to 1,109,000 metric tons, but by 1935 it had fallen to 575,000, rising again to 759,000 tons for 1934, but falling back to 650,000 tons for 1937. For decades a substantial part of this output had been exported, in the last five years before the War and in the 1924-29 period about a third. However, for the reasons mentioned above, exports fell from their average of over 350,000 [metric tons for the five years 1924-28; in 1933 they were still 265,000 tons, but by 1935 this figure had dropped to 150,000 tons.

This decline in exports from the United States was in part favourable to other exporting countries such as Denmark, the Netherlands, Hungary, Yugoslavia, Canada, Brazil and China. Nevertheless, the increase in exports from these countries was small compared with the reduction in exports from the United States, so that total exports from the principal exporting countries of Europe, North and South America and Asia fell from an average of 406,000 metric tons for the five years 1924-28 to about 134,000 metric tons in 1936.

The data relating to the production of beef fats is very incomplete. The principal exporting countries are Argentina, Australia, New Zealand, Uruguay and the United States. Exports go mainly to the United Kingdom, Germany and Czechoslovakia. In recent years the United States has also become a net importer. International trade in this commodity has greatly declined now that the margarine industry is no longer dependent on these animal fats.

TABLE 8. — *Imports of Beef, Sheep and Goat Fats in different countries.*
(Import surplus in 1000 metric tons).

Country	Average 1924-28	Average 1929-33	1934	1935	1936
Germany	47.4	31.5	31.9	20.1	35.3
United Kingdom	54.1	55.8	43.1	3.3	26.7
Netherlands	56.8	27.6	11.7	11.2	9.8
Belgium	9.9	6.1	4.4	2.6	2.1
Denmark	1.9	7.1	3.6	(¹)(- 2.7)	(¹)(- 2.1)
France	3.0	(¹)(- 5.0)	(¹)(- 4.5)	(¹)(- 13.7)	(¹)(- 5.2)
United States	(¹)(- 47.0)	(¹)(- 28.9)	2.7	107.6	24.8

(¹) Export surplus.

V. — Marine animal oils.

Production.

A distinction must be made between fish oils, fish liver oils, and oils from whales and other marine mammals. Only for the world production of whale-oil, which, however, makes up about two-thirds of the total output of marine animal oil, is there reliable information. This is contained in the International Whaling

Statistics published by the Norwegian Government, on mandate from the *Whaling Committee of the International Council for the Study of the Sea*.

About 90 per cent. of the production of whale-oil in recent years has come from the Antarctic, the supply of whales in the Arctic having been seriously reduced by reckless whaling in the past.

In 1930-31 the output of whale-oil rose to 624,400 metric tons. At the same time the economic crisis had led to a great increase in stocks, and Norway, which produced over 60 per cent. of the total output, decided not to take part in the next whaling season. As a result, production in 1931-32 fell to 155,100 metric tons. In the next two years output was respectively 438,000 and 436,000 metric tons. These quantities could, however, only be marketed with difficulty, and the price of whale-oil, (No. 0-1) per English ton fell to £8 10s—£11 10s, against £34—£38 in 1925, £40—£90 in 1920 and £21 10s—£22 10s in 1913. This fall in prices, combined with anxiety about the decimation of whale supplies, led to agreements on the regulation and restriction of whaling, first between Norway and Great Britain, which in 1934-35 together accounted for about 94 per cent. of the total production, in approximately equal proportions, and in more recent years between all countries taking part in whaling.

TABLE 9. — *Output of Whale-Oil.*

(Thousand metric tons).

1909-10	48.1	1932-33	439.7
1912-13	129.8	1933-34	435.7
1929-30	474.0	1934-35	455.7
1930-31	624.4	1935-36	486.2
1931-32	155.1	1936-37	543.7

The conclusion of a comprehensive international agreement was necessary, because, besides Norway and Great Britain, other countries were increasing the extent of their whaling operations — Japan and the United States from 1935-36 and Germany from 1936-37. The particular regulations of the London Agreement may still be imperfect, but nevertheless limits are set to any sharp increase in production.

The principal producers of liver oils and other fish oils are the United States, Norway, Japan and Great Britain. In 1936 the United States output amounted to about 8,000 metric tons of liver oil and 121,000 metric tons of other fish oils. By far the larger part of Norway's output is exported, and in 1936 exports (there are no figures for production) amounted to 10,939 metric tons of medicinal oils, 11,767 metric tons of herring oils and 18,686 metric tons of other fish oils. In the same year exports from Japan were 36,666 metric tons. According to the data supplied by the 1934 Census of Production, Great Britain produced in that year 20,000 metric tons.

International trade.

Table 10 shows the movement of the international trade in marine animal oils. The big disparity between the total net imports and exports is due to the circumstance that a large part, principally the output of whale-oil, is transported

Germany is the largest consumer of marine oils. In the last two decades total consumption, in conjunction with the increase in the output of margarine, rose continuously. According to existing data in 1933, 153,000 metric tons were used in the margarine industry and 1,500 metric tons in the soap industry. A comparison of these figures with those of imports will show that only small quantities of whale-oil could have been at the disposal of other branches of production during the years in question.

In *Great Britain*, which is the second most important consuming country of whale-oil, this product is mainly used in the margarine and lard-compound industries. Thus in 1936, 66,000 metric tons were used in the margarine industry, 41,000 metric tons in the lard-compound industry, and 28,000 metric tons in the soap industry. Calculating on the basis of the import figures, therefore, only small quantities were free for other purposes.

In contrast to Germany and the United Kingdom, the *United States* uses the largest part of its whale-oil and other marine fats in the soap industry, about 90 per cent. of the whale-oil and more than half the fish oil being used for this purpose from 1932 to 1936. The margarine industry did not use any marine fats and the lard compound industry only about 1 per cent. of all fats and oils used.

VI. — Principal importing countries of oils and fats.

In recent years the principal importing countries, in order of the volume of their import surpluses, have been the United States, Germany, the United Kingdom, France and Italy; whilst the Netherlands, Denmark, and Czechoslovakia have also had substantial import surpluses.

Table II shows the total consumption and either the import surplus or the home output of oils and fats in the three principal importing countries. The calculation of the import surplus is based on the figures for actual imports and exports. The import surplus calculated in this way may differ substantially from the "real" import surplus, i. e. from the quantity obtained by including in the above imports the quantity of fat (e. g.; butter and pigfat) which is acquired through imports of fodders.

Up to 1915 the *United States* had for decades had a considerable export surplus of oils and fats which still in 1914 amounted to 238,000 metric tons. Since 1915, however, only in two years, 1921 and 1924, have there been export surpluses. The output of pig and beef fats, primarily of lard, continued to be considerably in excess of home requirements, while the output of butter was at least sufficient. Imports of oilseed and vegetable oils, however, increased from year to year. After 1923 the export surplus of animal fats showed a tendency to fall, moving from 544,300 metric tons in 1923 to 388,000 metric tons in 1934. In 1935 and 1936 imports of animal fats exceeded exports for the first time. There were big increases in imports of tallow and marine oil, while exports of lard and tallow fell to small amounts compared with earlier periods. As at the same time imports of oilseeds and vegetable oils were increasing still further, the total import surplus of oils and fats reached 1,076,000 metric tons in 1935, the figure

for 1936, however, falling to 927,000 metric tons. The highest import surplus yet reached occurred in 1937 with 1,142,000 metric tons. The big increase in imports was partly due to the reduction in the home output, resulting from unfavourable weather conditions and measures of restriction, and partly to increasing consumption. The increase in imports related primarily to linseed, palm kernel, palm oil, cottonseed oil, marine oils and coconut oil.

TABLE II. — *Supply of Oils and Fats in the United States, Germany and the United Kingdom* ⁽¹⁾.

(Thousand metric tons).

Year	United States		Germany		United Kingdom	
	Total consumption	Import surplus	Total consumption	Imports surplus	Total consumption	Home production
Average 1909-13	(1) 2,696	(2)(3)(-238)	1,754	711	950	125-200 thousand metric tons per annum.
Average 1924-28	3,642	198	—	—	1,104	
1929	3,993	485	2,041	1,067	1,200	
1930	3,835	418	2,077	1,073	1,200	
1931	3,813	396	2,081	1,037	1,225	
1932	3,667	229	2,201	1,173	1,235	
1933	3,724	437	2,078	1,015	1,275	
1934	3,944	390	2,109	1,008	1,300	
1935	3,963	1,076	2,002	872	1,300	
1936	4,173	927	2,152	989	1,330	
1937	34,232	1,142	...	976	...	

(1) In comparing the figures for the three countries with one another, it is to be noted that the calculation of the quantities has not been based on the same principles in each case. Thus in the case of Germany and the United Kingdom only the real fat content of animal fats is included; while in contrast to those for the United Kingdom and the United States the German figures include the fat content of milk, cheese and salted fat pork. In order to reproduce the figures in the form in which they were supplied by each country, no attempt has been made to standardize them. — (2) 1914. —

(3) Export surplus.

In the three years 1935-37 about 25 per cent. of the consumption of oils and fats in the United States was met by imports: Measures of the most varied description were introduced to lessen this dependence on foreign countries.

The good cotton crop in 1937 and the increase in the production of lard in 1938 led to a fall in net imports to 693,100 metric tons in 1938, while the total consumption of 4,192,100 metric tons remained about the same as in 1937 (4,232,000 metric tons).

Until 1933, when Germany introduced a thoroughgoing control of the fat market aiming at the greatest possible self-sufficiency, her import requirements were considerably higher than in the five years 1909-13. The share of imports in total consumption rose from 41 per cent. in 1909-13 to 53 per cent. in 1932, but in the following year it started to move back towards the 1909-13 position.

The increased share of the home production is the more worthy of note because of the greatly increased consumption during the same period, consequent on improved earning possibilities. If account is taken of fats obtained through the importation of fodders, the dependence on abroad was about 60 per cent. in the five years 1909-13, 65 per cent. in 1928 and fell in subsequent years to 50 per cent. in 1935 and 1936.

As in the United States and Germany, the consumption of fats in the *United Kingdom* has also shown a large increase. The dependence on abroad has altered little, only 10 to 15 per cent. of the consumption being produced at home.

France is also largely dependent on outside sources for her supplies of fats and oils, but in this case the dependence is mainly on her own colonies. The following figures relate to the supply of fats and oils in France for 1935:

	Total oil and fat supply	Home production
	(Thousand metric tons)	
(1) Vegetable oils and fats	511.2	17.8
(2) Butter	210.4	215.0
(3) Lard and tallow	57.0	75.0
(4) Marine oils and fats	6.7	0
Total . . .	<u>785.3</u>	<u>307.8</u>

Thus the share of imports in the total supply was about 60 per cent.

The available data suggest a total consumption of food fats in *Italy* in the last few years of about 500,000 metric tons, 90 per cent. of which was produced at home. According to these estimates some 160,000 metric tons were used for industrial purposes, of which from 25,000 to 37,000 metric tons were supplied by home sources. The following table shows the figures in detail:

	Total consumption of oils and fats	Home production
	(Thousand metric tons)	
(1) <i>Food oils and fats:—</i>		
Olive oils	220.0	210.0
Seed oils	63.0	6.3
Salted pork fat and lard	166.0	165.7
Butter	52.5	52.0
Total . . .	<u>501.5</u>	<u>434.0</u>
(2) <i>Industrial oils and fats:—</i>		
Animal and vegetable oils and fats . . .	160.0	25.0-37.0
Total consumption of oils and fats . . .	<u>661.5</u>	<u>459.0-471.0</u>

VII. — Utilization of fats and oils.

Development in general.

Some fats are suitable for food as soon as obtained, requiring no further processing and, as with butter and lard, are used almost exclusively for human consumption. The same is true of a number of vegetable oils which, after being pressed in the cold, only require filtering to be suitable for food. Vegetable oils obtained otherwise are, however, also gradually being made suitable for purposes of human consumption. Before the War, for example, all oils extracted by solvent were still considered to be suitable only for technical uses. It was only with the introduction of new refining methods by which free fatty acids, colouring substances and odours could be completely eliminated, that it became practical to obtain from extracted oils good, and in some cases, excellent edible oils. A similar development may be noted in the case of whale-oils, due primarily to progress in methods of hardening fats. This material, like many other oils and fats previously unsuitable for food, only enters indirectly into consumption, namely, after being manufactured into the so-called artificial edible fats such as margarine, lard compound, etc.

As a result of the great progress in oil production and oil processing, not only are nearly all kinds of oils, with a few exceptions (tung, castor, croton oil, and some others of less importance), suited for human consumption, but also a higher return can be obtained from various oil-yielding raw materials, and also in the case of many oils the percentage of the product suitable for human consumption has been raised. Whereas, for example in Italy 30 years ago about one-third of the output of olive oil could be used only for industrial purposes, with present day refining methods some 95 per cent. is suitable for human consumption.

In the last few decades the increase in the consumption of oils and fats has related almost entirely to their use for food purposes. The proportion of food fats to total consumption of fats and oils has, in fact, constantly increased. Thus of the total consumption of oils and fats in Germany over the period 1930-35 only about 32 to 34 per cent. was used for industrial and technical purposes. In the United Kingdom the figure was 28-29 per cent., in the United States about 30 per cent. and in Italy about 25 per cent.

Since it may be taken for granted that now as before butter and lard are used almost entirely for food purposes, the changes in utilization which we have mentioned must have occurred mainly among vegetable marine animal oils and fats. This is borne out by the statistics. While, for example, of the total consumption of vegetable oils and fats in Germany in 1913, only one-third was used for food purposes, in 1928 the figure had risen to two-thirds of the total consumption.

The increased demand for food oils strengthened the tendency of industry to use less valuable oils and fats. This tendency, however, has been very limited when particular properties of the oils were required, as, for example in the varnish, paints and lacquer industries. Industry also endeavoured to render

itself partly independent of vegetable oils and fats. Thus even before the War vegetable oils were replaced by mineral oils for lubricating purposes, and in the manufacture of candles paraffin was increasingly substituted for stearin. Quite recently successful attempts have been made to produce synthetic fats.

At the present time the fats and fatty oils still used for industrial and technical purposes are mainly of vegetable origin. The relatively small quantity of animal fats and oils still employed consist chiefly of tallow and residue fats. The largest consumer of industrial fats and oils is the soap industry, their employment in the manufacture of colouring materials, lacquer, lubricants, candles, linoleum, oil-cloth, leather, textiles and tin-plate each accounting for much smaller amounts.

Of the industrial consumption of fats and oils recorded in the United States (excluding the consumption by local painters), the proportions utilized for different industries over the five years 1931-35 were as follows: 56.5 to 67.8 per cent. for soapmaking, 12.4 to 17.5 per cent. in the preparation of colours and lacquers, and 2.8 to 3.5 per cent. in the manufacture of linoleum and oil-cloth; thus only about 20 per cent. remained over for other purposes and as waste. In the United Kingdom, of the total consumption for technical purposes 59 to 65 per cent. were used in soapmaking, 25 to 33 per cent. in the preparation of colours and lacquers, and 10 to 15 per cent. for other purposes, e. g. lubricants and oils for illumination. In Germany, of the total consumption of vegetable oils and fats for industrial and technical purposes in 1928, 40 per cent. was used in soapmaking, 31 per cent. went to the preparation of lacquers, colours and varnishes, 11.8 per cent. was employed in the manufacture of linoleum and oil-cloth, and 8.2 per cent. for other purposes.

Consumption of food fats.

Only in a few countries was the increase in the consumption of food fats and oils, which had increased everywhere during the last two decades, interrupted by the economic crisis. Indeed, in most countries and even in those with particularly high unemployment, the increase in consumption continued throughout the crisis. Any further increase in purchasing power will very probably be accompanied by a further rise in the consumption of these commodities.

The use of fat for food purposes can be considered under two main heads: for spreading on bread and in the preparation of food. The principal fat of the first type is butter. Butter consumption is therefore at its highest where the practice of spreading butter on bread is most generally diffused, that is, in the Central, North and North-West European countries, and in the countries of those other continents which have been settled mainly by emigrants from these European countries. This can be seen at once from the data on butter production and the butter trade. In all other countries the consumption of butter is small.

Only in the countries with a high consumption of butter did the conditions exist for any considerable consumption of margarine. In several such countries however, the production and consumption of margarine were either early restricted as in the United States and France, or entirely forbidden as in Canada, and Australia. But where margarine consumption was allowed to develop freely, in

many cases it approached the level of butter consumption, as in Great Britain; in some cases reached it, as in Germany, Sweden, the Netherlands, and Czechoslovakia; or in a few exceptional cases, such as Norway and Denmark, even exceeded it by more than double.

A third fat used to spread on bread is lard. Its use in this way is mainly limited to families slaughtering at home, the greater part being used for cooking and frying. In the latter use lard encounters competition from salted fat pork, and to some extent also from lard substitutes. In only a few countries, however, have the production and consumption of lard compound reached any considerable proportions.

TABLE 12. — *Consumption of Butter and Margarine in certain countries.*
(Kilogrammes per head).

Country	Butter				Margarine			
	1925	1929	1932	1936	1925	1929	1932	1936
Argentina . . . . .	...	...	1.0	...	—	—	—	—
Australia	13.0	13.4	13.2	...	—	—	—	—
Belgium . . . . .	...	7.8	10.4	...	4.0	5.9	3.6	6.3
Denmark	5.6	5.9	8.5	9.1	20.9	22.5	20.4	21.0
Germany	5.6	7.5	7.5	8.5	6.6	7.5	8.1	6.6
France	4.8	5.3	...	(1) 5.0	0.9	1.1	0.8	0.6
Italy	1.3	1.0	1.1	1.1	...	...	0.1	(2) —
Canada	12.4	13.3	13.8	14.6	—	—	—	—
New Zealand (3)	15.2	16.3	16.3	18.1	—	—	—	—
Netherlands	(4) 5.6	5.8	(5) 8.7 (8.0)	(5) 5.5 (5.0)	7.4	9.2	(5) 6.7 (6.0)	(5) 6.2 (5.7)
Norway . . . . .	...	1.4	2.9	...	16.3	16.9	16.9	...
Sweden . . . . .	...	7.1	9.4	10.4	6.6	9.6	8.4	9.2
Switzerland . . . . .	...	5.8	6.5	6.7	...	...	...	...
Czechoslovakia . . . . .	...	...	(6) 4.5	6.6	...	(7) 2.7	(7) 3.1	(7) 5.0
United Kingdom	7.1	7.9	9.8	11.3	5.6	5.6	4.5	3.9
United States	8.0	7.9	8.2	7.5	0.9	1.3	0.7	1.4

— = Consumption practically nil. — ... = No information.

(1) 1935. — (2) A Decree-Law of February 1934 limited, and a Decree-Law of August 1937 prohibited the production and sale of margarine for food purposes. — (3) Business year, beginning in the year given. — (4) 1926. — (5) Figures in brackets give consumption less the quantity of butter which must be mixed with margarine by law. — (6) 1933. — (7) Margarine and other artificial edible fats.

In contrast to other oils and fats, the consumption of table oils only reached large proportions in countries producing olive oil. In certain of these countries, such as Italy, the consumption of olive oil is greater than that of all other fats together.

As with almost all important food materials the volume and composition of the consumption of food fats and oils is to a great extent conditioned by the climate, standard of living, occupation, way of life and the orientation of local production.

The degree to which the volume, and still more the composition, of fat consumption is affected by purchasing power is shown by the results of household budget inquiries. In the publication of the Institute mentioned at the beginning of the article ⁽¹⁾ are assembled the results of such inquiries in Belgium, Denmark, Germany, Finland, Norway, Poland, Sweden, Czechoslovakia, the United Kingdom, and the United States. The results show the same tendencies everywhere. Where income is rising the consumption of fats and meat increases, while the consumption of carbohydrate foodstuffs and especially of cereals falls off. The trends of consumption with regard to particular fats, however, vary greatly. Above a certain level of fat consumption further increases related entirely to the more expensive fats, chief of which was butter, while the consumption of other fats declined, sometimes at an exceptional rate. In the countries mentioned butter and margarine were most affected by the variations. When incomes were rising, the consumption of butter increased without exception.

The consumption of margarine was much larger than the consumption of butter in the lower income groups in Denmark (0.7 kg. of butter and 28.4 kg. of margarine per consumption unit per annum in the lowest income group), in Germany (2.7 and 11.8 kg.), in Norway (1.3 and 23.3 kg.), in Sweden (7.5 and 12.2 kg.) and in the United Kingdom (4.0 and 7.2 kg. per head per annum). In Denmark, in contrast to the other countries, the consumption of margarine in all social groups only experienced slight fluctuations. It appears further that in Denmark margarine is not only a food material of the industrial and town populations, but in many cases also of the rural, and even agricultural, population. The very high figure of 28.4 kg. for the consumption of margarine against only 0.7 kg. for butter was, in fact, found in those households investigated in the household inquiry which were situated in rural areas. There are indeed other countries where the consumption of margarine is also fairly high in the rural areas; in general, however, margarine is primarily the food fat of the industrial worker. Both in relation to the absolute price level and the price relationships between margarine and other fats competing with it, the consumption of margarine experiences large fluctuations.

Production of margarine and other artificial food fats.

Table 13 shows how outside Europe the production of margarine, lard compound and similar food fats has only assumed large proportions in the United States. Whereas margarine is the most important artificial food fat in European countries, in the United States lard compound leads. The production of lard compound has been encouraged in the U. S. A. both by past legislation restricting the production of margarine and by the large home output of cottonseed oil, a cheap raw material which is well suited for the lard compound industry. In Europe the production of lard compound and vegetable cooking fats has only reached any considerable proportions within the last two decades.

⁽¹⁾ English edition pp. 380 to 384.

Though from the outset the margarine industry met with fierce opposition from the farming population, in most countries special measures against its production were not long maintained. The production of butter and other animal fats such as lard and salted fat pork did not keep pace with the increase in demand; hence an excessive rise in prices could only be avoided and the supply of fats assured by having recourse to vegetable oils and fats, and later also whale-oil, which could only be used for food purpose in the form of margarine. With few exceptions legislation was confined to checking the illegitimate competition of margarine with butter, the prevention of adulteration and of the confusion of margarine with butter, and the observing of certain hygienic prescriptions relating to the production and sale of margarine; in short, to giving to agriculture and the consumer the protection found necessary for them. Only in Canada, Australia, New Zealand and South Africa, where food habits were favourable to a considerable consumption of margarine, were its production and consumption completely or almost completely prohibited by legislation. This occurred soon after its appearance in these countries.

This was more or less the situation before the War and in the first decade after the War. Conditions only changed radically with the onset of the depression. As a result of the rapid decline in purchasing power it gradually became more difficult to market the ever increasing output of butter in the principal margarine-producing countries. The margarine industry, on the other hand, as a result of progress in organization and technique and the abundant supplies of raw materials, was able to meet the fall in purchasing power by further reducing the already low price of margarine. Thus to take one example, the average cost per ton of fats and oils used by the German margarine industry fell from RM.865 in 1928 to RM.343 in 1933. The fall in prices was even greater in the other margarine-producing countries. No proof is required to show how this pressed on the already falling butter prices. The lower butter prices gave an increased competitive power to butter, but in many countries the effect of these low prices on agriculture was disastrous, for here there could be no solution by means of a shift to other types of production. Governments therefore began to introduce the most varied measures to protect the butter industry. Both in butter exporting and butter importing countries these measures were largely aimed at margarine. No such measures have been passed in the United Kingdom, while those taken against the production and marketing of margarine in Denmark were only temporary, and then not very far reaching; but in the United States and all the other important margarine-producing countries in Europe a whole series of special measures were taken.

All the regulations relating to the production and marketing of margarine, however, went to show that radical measures were only possible to a very limited extent. The various measures taken almost always aimed at raising the price of margarine to make it easier to sell butter; but limits were set to the extent of the rise. The difficulty is that margarine is the main food fat of a large section of the population whose position is not entirely favourable from a nutritional point of view, and with them dearer margarine leads not to the desired shift to other fats but to a reduction in their total consumption of fat; indeed, during

TABLE 13. — *Output of Margarine*

(Thousands)

	1913	1924
<i>United States</i>		
Margarine.	69.0	105.2
Lard compound and other food fats	453.6	376.8
<i>Germany</i>		
Margarine.	200.0	340.0
Artificial and mixed food fats		
Unmixed food fats		
<i>United Kingdom</i>		
Margarine	(²) 81.8	136.4
Lard compound. . . . .	...	25.6
<i>Denmark</i>		
Margarine.	42.0	69.4
Palmin. . . . .	...	...
Lard compound. . . . .	...	...
<i>Czechoslovakia</i>		
Margarine and other artificial food fats . . . . .	...	...
<i>U. S. S. R. (³)</i>		
Margarine.	0	0
Vegetable fat compounds	0	0
Animal fat compounds.	0	0
<i>Netherlands</i>		
Margarine.	89.9	130.8
Artificial food fats and other refined fats and oils	0.1	23.4
<i>Sweden</i>		
Margarine	23.6	29.8
Artificial food fats.	0.9	0.2
Coconut fat	0.3	1.0
<i>Norway</i>		
Margarine.	27.4	42.9
Lard compound. . . . .	...	...
<i>Belgium</i>		
Margarine.	10.1	28.1
<i>France</i>		
Margarine	15.6	29.8
<i>Finland</i>		
Margarine . . . . .	...	4.8
<i>Japan</i>		
Margarine . . . . .	...	0.3

(1) From April 1, including Saar territory. — (2) Figures for 1912. — (3) Production began in 1930. —

and other Artificial Food Fats.

metric tons).

1928	1932	1933	1934	1935	1936	1937
143.6	92.2	111.3	119.9	173.1	178.4	180.2
518.6	428.8	432.1	546.3	701.6	719.7	...
436.8	510.0	405.5	381.7	(1) 404.8	422.5	366.0
17.1	...	16.9	12.2	15.6	15.7	16.5
32.8	...	42.3	...	33.4	27.6	24.8
...	...	175.3	166.6	178.8	183.9	187.0
...	...	56.0	57.9	89.4	...	...
76.5	73.3	74.3	71.7	78.0	78.2	77.7
...	1.1	1.4	1.2	1.5	1.5	1.5
...	1.6	1.6	1.1	1.7	1.7	1.6
...	46.0	63.9	75.2	67.3	75.1	65.0
0	33.3	38.2	32.8	...	...	...
0	4.4	3.9	27.0	...	...	...
0	0.5	9.6	9.4	...	...	...
139.9	(4) 62.7	(4) 51.7	(4) 52.5	(4) 53.2	(4) 55.5	(4) 65.9
35.8	3.9	3.8	4.1	6.9	6.6	7.1
50.7	49.9	50.2	53.3	55.9	56.7	59.5
0.7	0.4	0.4	0.7	1.2	1.8	2.5
0.9	1.1	1.2	1.4	1.7	1.9	2.2
46.6	47.9	48.1	49.5	51.3	55.3	53.4
0.4	0.6	0.7	1.1	1.5	1.4	1.6
44.4	28.2	34.7	38.2	45.8	52.7	...
31.2	31.1	32.0	33.0	28.0	29.7	...
9.8	6.3	8.5	8.3	10.4	11.7	12.6
0.5	1.1	1.6	1.6	1.4	2.8	...

(4) Including the quantity of butter which must legally be mixed with margarine.

the crisis it was only cheap margarine which enabled these classes to consume reasonable quantities of fat. In nearly all countries in which the production of margarine was regulated, therefore, measures were taken at the same time to ensure an adequate and cheap supply of fat to those sections of the population whose purchasing power was small.

The decline in the output of margarine after 1930, which was caused partly by the measures directed against it and partly by keener competition from butter, lasted only until 1933 or 1934. By 1934 in several countries and by 1935 in almost all the important producing countries there was recovery in production. The position of the fats markets in these countries had changed considerably as a result of smaller crops of oilseeds, the reduced output of animal fats owing to bad fodder harvests and the compulsory limitation of production, and also in consequence of an increased demand due to less unemployment and better earning possibilities.

The nature of the fats and oils used for the margarine and other artificial food fat industries has altered greatly in the last ten years. Margarine was originally prepared almost exclusively from animal oils and fats; vegetable oils and fats were only gradually introduced. At the beginning of the century this process was accelerated by the rise in the prices of animal fats. The movement away from the fats and oils of land animals has continued until to-day, and in recent years has been interrupted in only a few countries by special measures aiming at an increased use of home products, and then generally only temporarily.

Apart from these few cases, the proportion of the land animal fats and oils at present used in the margarine and artificial food fats industries is everywhere very small. Thus in the United States their share in the margarine industry fell from 72 per cent. in 1913 to 27 per cent. in 1929, somewhat over 8 per cent. in 1936 and only 6 per cent. in 1937. In Germany's margarine and artificial food fats industry it dropped from 50 per cent. in 1913 to 5.7 per cent. in 1928, 3.5 in 1933, 2.3 per cent. in 1935, 1.1 in 1936, and 1.2 per cent. in 1937. In the margarine industry in the United Kingdom it fell from 10.6 per cent. in 1927 to about 6.0 per cent. from 1935 to 1937, and in the lard compound industry from 2.8 per cent. in 1927 to under 1 per cent. in 1936 and 2 per cent. in 1937. And in Denmark's margarine and artificial food fats industry the proportion fell from 77 per cent. in 1905 to 18 per cent. in 1913, 7 per cent. in 1928 and 6 per cent. in 1935.

The type of vegetable oils and fats which replaced animal fats varied greatly from country to country, and increasingly so as technical advances rendered large numbers of oils suitable for the manufacture of margarine.

As we have seen, in addition to land animal fats and vegetable oils and fats, a further raw material, whale-oil, has been brought into use since the War. To-day it has become one of the most important fat materials for the production of margarine and other artificial food fats. The share of whale-oil in the total quantity of oils and fats employed in Germany's margarine and artificial food fats industries rose from 9.8 per cent. in 1924 to 15.7 in 1938, 39.1 per cent. in 1933, 54.4 in 1935, 29 per cent. in 1936 and 27.7 in 1937; in the United Kingdom's margarine industry the proportion increased from 16.8 per cent. in 1927 to from

37 to 38 per cent. in the years 1933 to 1935, 42 per cent. in 1936 and 41 per cent. in 1937, and in the lard compound industry from 16.8 per cent. in 1927 to 26 per cent. in 1935 and 28 per cent. in 1936 and 1937; in Denmark's margarine industry it rose from 1.4 per cent. in 1924 to 22.7 per cent. in 1935; and finally in Norway's margarine industry the proportion in 1935 was 24.7 per cent. there being no data for earlier years.

H. BÖKER.

CHANGES IN THE PROFITABLENESS OF AGRICULTURE IN CERTAIN COUNTRIES OF EUROPE ⁽¹⁾

SUMMARY: I. Introduction. — Changes in the gross return, cost of production and social income in the following countries: Switzerland, Norway, Finland, Sweden, Denmark and Württemberg (Germany). — II. Introduction. — Changes in the gross return, cost of production and social income in the following countries: Germany, Scotland, France (Soissons and Etrépnay), Hungary, Estonia, Latvia, Lithuania, Netherlands (Overijssel), Poland and Czechoslovakia.

I.

In the first part of this article we shall study changes in the profitableness of agriculture from the beginning or end of the War to 1935-36 or 1936-37 in Switzerland, Norway, Finland, Sweden, Denmark and Württemberg. In the second part we shall deal with countries the material for which covers a more recent period. As regards Germany, the country will be dealt with as a whole in the second part, but Württemberg will be separately treated in this first part as the information about this territory is more complete, enabling us to go back to 1924 and even to consider the years immediately preceding the War.

We have drawn up graphs which show changes in the gross return, cost of production and social income during this period ⁽²⁾.

⁽¹⁾ Previous articles on this topic have appeared in the October, November and December 1938 numbers of the *Monthly Bulletin of Agricultural Economics and Sociology*.

⁽²⁾ The *gross return* is the increase in wealth obtained on the farm in the course of a year by transformation, exchange and revaluation. It thus covers money receipts, contributions in kind to the household and to subsidiary undertakings, payments in kind to employees and increases in the farm inventory.

The *cost of production* covers the expenditure through which the gross return has been obtained; the cost of labour, including an amount representing family labour earnings; expenditure, including taxes and contributions in kind, required for the running of the farm; decreases in supplies and expenses incurred in improving land fertility; depreciation charges and interest payments on assets.

The difference between the gross return and the cost of production gives the *profit or loss on total farm assets*. This shows in what proportion the prices of agricultural products must be raised or lowered for the gross return to cover exactly the cost of production.

By subtracting working expenses (the portion of the cost of production consisting of the outlay on fertilizers, seed, fodder, repairs, depreciation, and costs of management) from the gross return, the *social income* is obtained, which consists of the sum of the returns from the farm, thus including the net return (the actual return on assets), taxes and cost of labour.

A glance at these graphs will show the consequences for agriculture of the troubled period through which it has passed.

From 1914 to 1918, in all the countries considered, the gross return rose very steeply, reaching a figure well above the cost of production. In Finland the maximum was not reached until later, in 1921-22, when [devaluation took place. In Finland, Norway and Switzerland the [social income was in 1918 above the cost of production. But in Sweden from 1918, in Norway from 1919, and in Denmark and Switzerland from 1920, the gross] return fell, remaining below the cost of production. After rising slightly above the cost of production in Switzerland in 1923-24 and in Denmark in 1928-29 and 1929-30 it fell again soon afterwards. The biggest fall took place from 1930 to 1933, made still worse, in the case of Switzerland, by the cost of production maintaining its level and even rising. About 1936, however, equilibrium was restored. The gross return started to rise again and tended once more to pass the cost of production. The policy of maintaining the prices of agricultural products, which the Governments had persistently pursued, began to bear fruit. In Württemberg the gross return and the social income fell about 1927 and particularly in 1930-32. From 1933 it tended to rise as in the other countries.

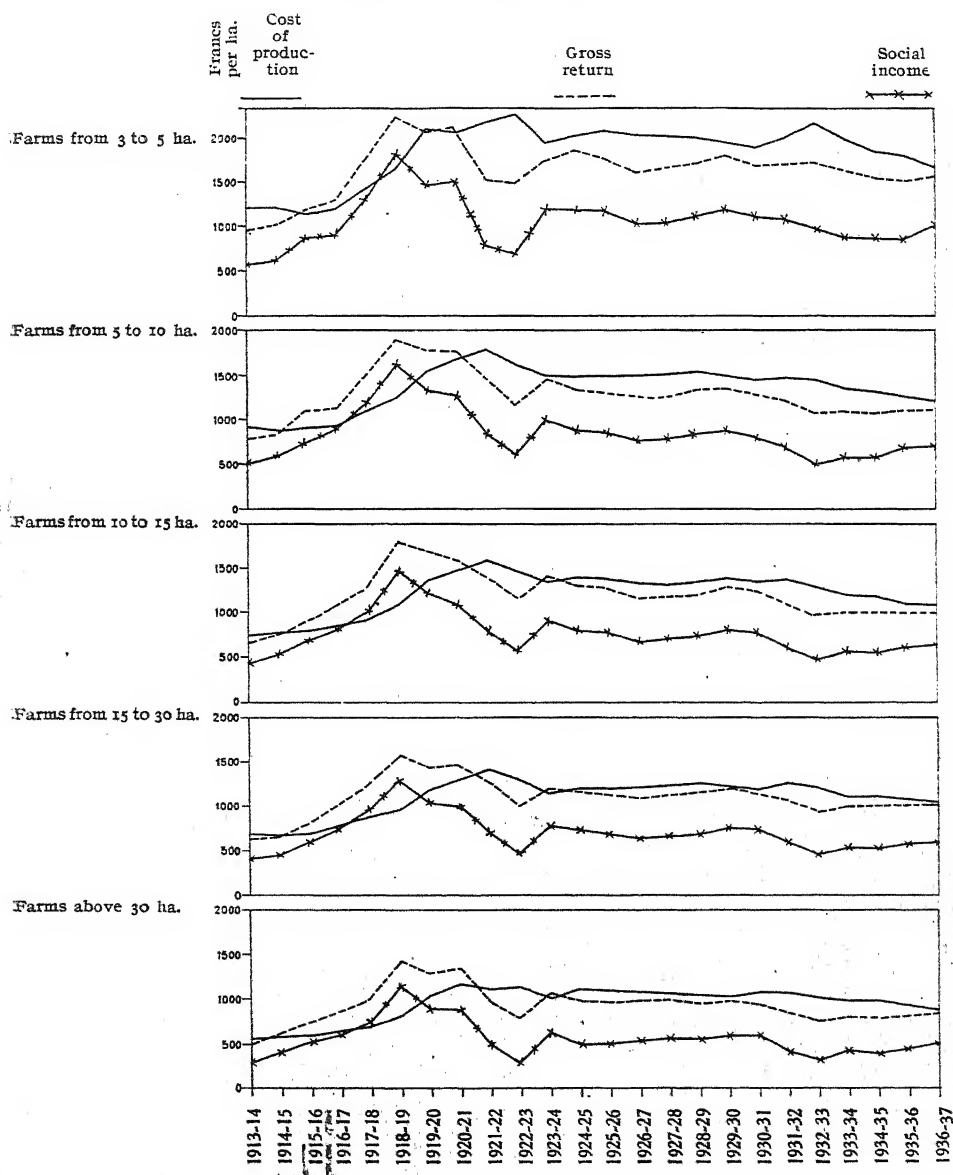
There were thus three periods of depression—that immediately following the boom at the end of the War, that of 1926-27 and that of 1929-33. In Finland there were only two—one in 1923-24, the other in 1930-33. The economic position of agriculture in Finland differed substantially from that in other countries. In Finland, the cost of production and gross return only reached their peak between 1927 and 1930, whereas in Sweden, Norway, Denmark and Switzerland the maximum figures had been reached by 1920. After a certain date, 1922 in Sweden, 1923 in Switzerland, 1925-26 in Denmark and Norway, the range of the fluctuations narrowed and the cost of production followed almost a straight line. The small farms of Switzerland, Denmark and Finland show less stable figures than the others. Danish farms experienced the smallest variations, owing to the high degree of specialization on the farms and the movement into dairy production and pig-rearing, as well as the close association between Danish agriculture and foreign trade. But the farms of less than 10 hectares stood up to the successive crises much less well than the larger farms.

From 1918 there was an increase, amounting in Finland to a trebling, of working expenses, which consist of repairs, depreciation charges, expenditure on fertilizer, seed-corn, fodder and overheads; the social income fell in a greater proportion than the gross return. From 1933, however, it began once again to move towards the latter, showing that agriculture was trying to recover its lost equilibrium.

Let us now look at the movement of prices of agricultural products and the profit or loss accruing to the peasant. To make the comparison possible we shall find the gain or loss of the peasant, representing the profit or loss on total farm assets per 100 monetary units of each country. When there is a loss the figure given will also indicate the proportion by which the prices of the farm products would have had to be raised for the gross return to cover exactly the cost of production.

Switzerland.

During the period of transition between 1918-19, when Swiss agriculture was giving its best results, and 1922-23, the crucial year of the post-War crisis, the gross return fell while the cost of production rose. In 1922-23 the peasants

GRAPH I. — *Switzerland.*

were losing from 30 to 52 per cent. of their gross return; but the consequences of the 1932-33 crisis were not so outstanding. The farms which enabled farmers to make the highest profits in 1918-19 and which stood up best to the periods of crisis were those of from 10 to 15 and from 15 to 30 hectares. In 1923-24 for the last time they yielded a gross return above the cost of production. Similar conditions prevailed in the farms of over 30 hectares.

Profit or Loss on Total Farm Assets per 100 francs Gross Return in Switzerland.

	1918-19	1922-23	1923-24	1929-30	1932-33	1934-35	1935-36	1936-37
Farms of 3 to 5 ha.	26.21	— 52.15	— 12.51	— 10.17	— 25.55	— 21.11	— 20.09	— 8.38
» » 5 to 10 ha.	36.34	— 37.07	— 2.69	— 10.30	— 35.77	— 24.74	— 13.61	— 16.83
» » 10 to 15 ha.	39.00	— 28.12	1.67	— 5.00	— 30.59	— 19.40	— 9.41	— 8.71
» » 15 to 30 ha.	39.60	— 31.12	3.11	— 2.35	— 28.44	— 14.73	— 8.14	— 5.13
» » over 30 ha.	42.53	— 42.06	2.65	— 4.24	— 34.51	— 24.02	— 13.09	— 5.21

Only in 1935-36 did Swiss agriculture begin to recover from the crisis. The price index for agricultural products fell 2 points, from 112 in 1934-35 to 110 in 1936-37. The index for the cost of production moved from 155 to 148, thus dropping seven points. Farmers' losses ⁽¹⁾ were greatly reduced, especially on farms in the 10 to 15 and 15 to 30 hectare classes. The position of farmers improved still further in 1936-37, the price index for agricultural products advancing from 110 to 119 while the cost of production index fell from 148 to 142. Thus the difference between the gross return and the cost of production has nearly disappeared.

Norway.

Norwegian agriculture was very prosperous in 1918-19, the gross return standing well above the cost of production; and in Trøndelag even the peasants were able to make a profit of over 40 crowns per 100 crowns gross return.

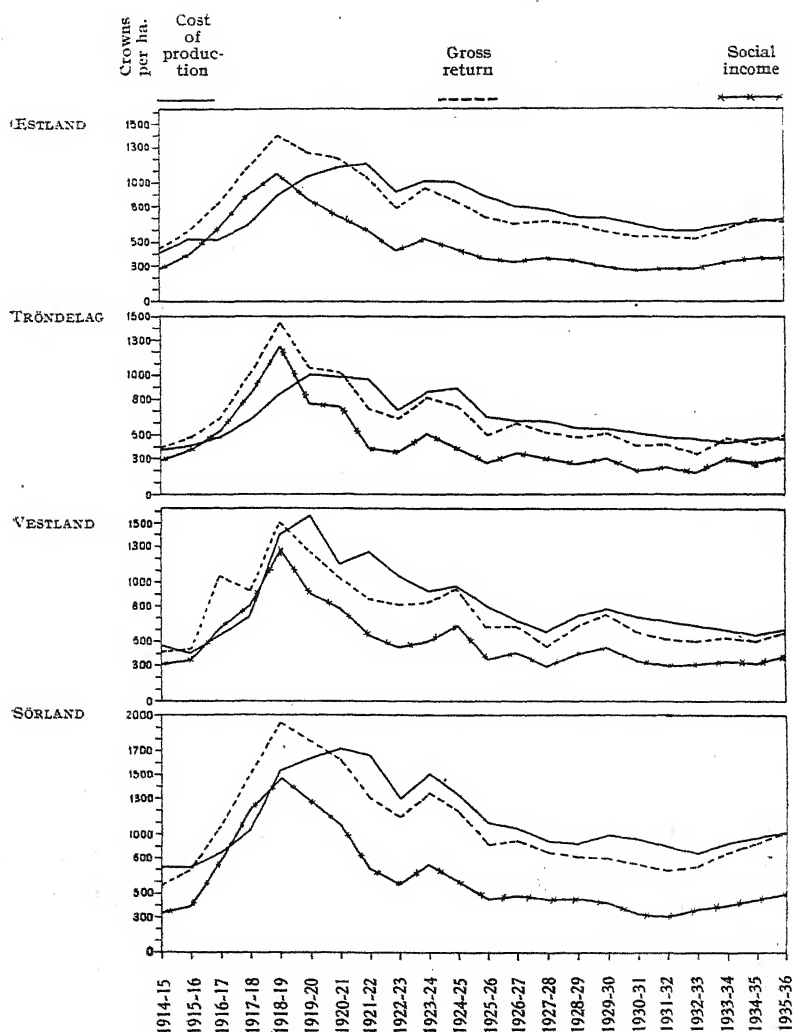
Profit or Loss on Total Farm Assets per 100 crowns Gross Return in Norway.

	1918-19	1922-23	1926-27	1932-33	1934-35	1935-36	1936-37
Østland	36.15	— 12.20	— 2.40	— 13.51	— 3.08	— 1.58	— 0.84
Trøndelag	41.52	— 16.40	— 3.21	— 15.53	— 2.33	— 6.78	— 2.36
Vestland	6.97	— 29.28	— 2.72	— 28.82	— 12.65	— 7.73	— 2.32
Sørland	19.97	— 14.03	— 2.09	— 27.77	— 9.27	— 5.03	— 0.16

⁽¹⁾ In speaking of a gain or loss, we mean the excess of the gross return over the cost of production, or of the cost of production over the gross return.

The relationship between the gross return and the cost of production was most unfavourable in the mountainous area of Vestland. The position of the peasant remained up to 1936-37 more precarious than in the other areas. The

GRAPH II. — *Norway.*



most favourable conditions are no longer found on the southern plateau, Sørland, but in Østland, which has a greater rainfall than other parts of Norway and where the forests, which have been greatly developed, led to the growth of towns and played a decisive part in the life of the peasant. During the crisis years the losses suffered by farmers were smaller than elsewhere. In 1935-36, for the first time

since 1921-22, there was a profit, amounting to 1.58 crowns per 100 crowns gross return. The gross return itself increased in a greater ratio than the cost of production, as the adjoining figures show. In the following year the cost of production rose while the gross return remained the same, and the peasant suffered a small loss.

Cost of Production and Gross Return in Norway.

(Crowns per hectare)

	Cost of production		Gross return		Milk and milk products	Cattle	Pigs	Vegetable products	Other products
	per ha.	Index numbers	per ha.	Index numbers					
Ostland									
1934-35	633	100	614	100	230	56	72	149	107
1935-36	670	106	681	111	158	61	83	180	99
1936-37	687	108	681	111	278	71	88	139	95
Trondelag									
1934-35	465	100	477	100	143	55	28	153	98
1935-36	485	104	454	95	161	61	36	92	104
1936-37	493	106	505	106	188	73	33	108	103
Vestland									
1934-35	611	100	524	100	157	64	54	95	134
1935-36	564	92	524	100	153	70	46	95	160
1936-37	600	98	586	112	185	60	54	109	178
Sorland									
1934-35	933	100	854	100	276	72	138	138	230
1935-36	986	106	939	110	276	85	178	171	329
1936-37	1032	111	1030	121	314	82	215	169	350

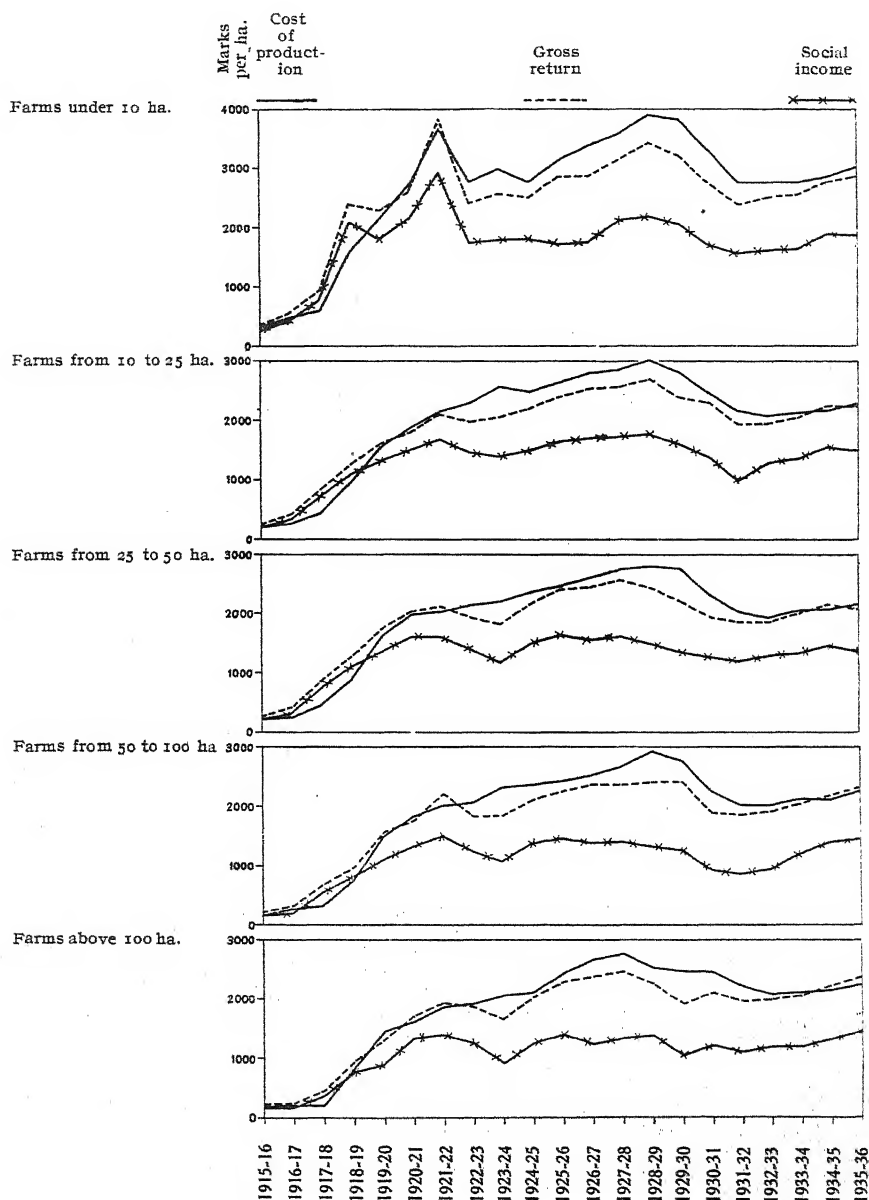
In Trøndelag the results were not satisfactory in 1935-36 compared with the preceding year and the year following; the farmer lost about 7 crowns per 100 crowns gross return. This was due to losses on cereals, the gross return on vegetable products having fallen from 153 crowns in 1934-35 to 92 crowns. The year 1936-37 was again normal, and the gross return rose above the cost of production.

In Vestland the cost of production fell by 8 per cent. in 1935-36. In 1936-37 it rose, but to a level below the 1934-35 figure. The gross return was not high enough to yield a profit to the peasant.

In Sørland the gross return rose more rapidly than the cost of production from 1934-35, so that by 1936-37 it had almost reached the level of the latter.

Finland.

In 1921-22, the last year in which the gross return remained clearly above the cost of production, the price of agricultural products were very high, with the exception of the prices of beef and potatoes. In 1931-32 they were at their lowest. They later rose considerably, so increasing the gross return.

GRAPH III. — *Finland.*

Farmers suffered their greatest loss in 1923-24. The gross return fell as a result of the fall in prices while the cost of production rose. In contrast, in 1929-30 the fall in gross return was accompanied by a fall in the cost of production. From

Prices of the Principal Agricultural Products in Finland.

(Finnish marks)

	1921-22	1923-24	1929-30	1931-32	1935-36
Milk (10 kg.)	17.0	16.5	15.4	12.6	14.5
Butter (10 kg.)	405	310	288	216	243
Cheese (10 kg.)	209	185	175	153	150
Beef (10 kg.)	72	75	78	50	70
Pigmeat (10 kg.)	150	122	130	76	89
Wheat (100 kg.)	350	230	209	252	255
Oats (100 kg.)	190	165	135	112	130
Potatoes (100 kg.)	60	70	70	48	53

1930-31 the deficit was reduced, and by 1935-36 farms of from 50 to 100 hectares and over 100 hectares were making profits of respectively 1.73 and 5.98 marks per 100 mark gross return.

Profit or Loss on Total Farm Assets on Finnish Farms.

(Percentage of gross return)

	1921-22	1923-24	1929-30	1931-32	1935-36
Farms of less than 10 ha.	1.27	— 17.58	— 16.96	— 15.21	— 5.75
Farms of 10 to 25 ha.	— 0.51	— 24.68	— 18.49	— 15.31	— 2.55
Farms of 25 to 50 ha.	3.98	— 21.73	— 24.35	— 9.43	— 0.99
Farms of 50 to 100 ha.	7.58	— 24.92	— 17.33	— 11.34	1.78
Farms over 100 ha.	3.59	— 21.94	— 28.25	— 12.04	5.98

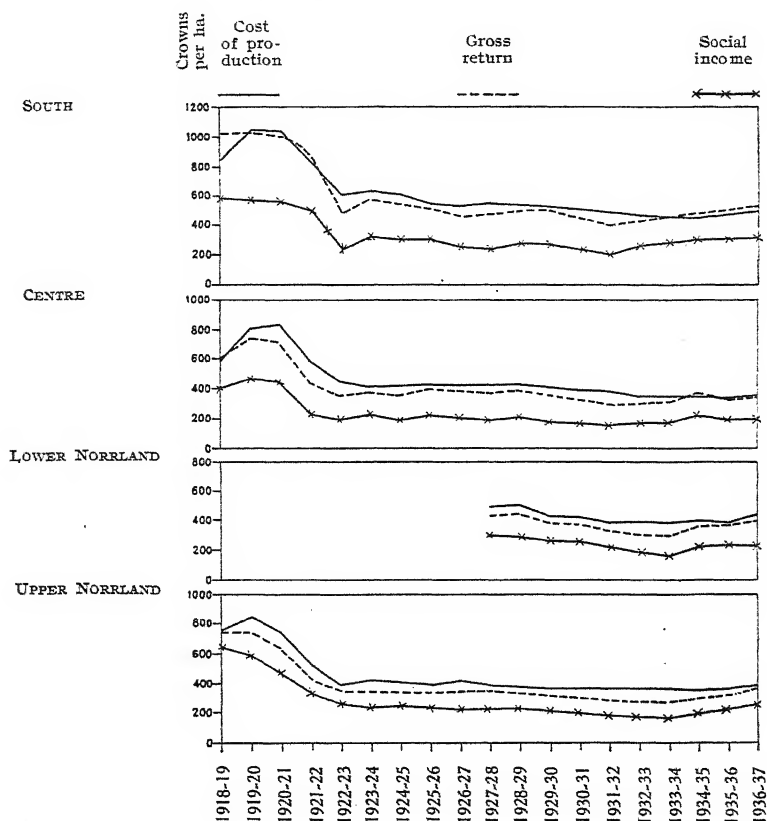
Sweden.

There are considerable differences between the figures for farms in North, Central and South Sweden. In Norrland the main agricultural product is livestock, scarcely 1.8 per cent of the total area being used for arable farming. In Central Sweden the distribution between arable and grazing land is more equal. In the south, arable farming leads, yielding very high returns; in 1918-19 the peasants made considerable profits.

Profit or Loss on Total Farm Assets per 100 crowns Gross Return in Sweden.

	1918-19	1922-23	1926-27	1931-32	1934-35	1935-36	1936-37
South Sweden	16.78	— 26.72	— 14.72	— 22.58	6.80	7.86	5.51
Central Sweden	3.03	— 27.87	— 23.81	— 30.61	2.80	3.02	2.30
Lower Norrland	—	—	—	— 15.27	— 9.04	— 5.96	— 12.66
Upper Norrland	— 1.34	— 13.21	— 16.90	— 21.51	— 18.60	— 11.75	— 5.51

In 1918-19 the farms in Central Sweden yielded the farmers a profit of only three crowns per hectare for each 100 crowns gross return. In Norrland in the same period there was a loss. During the worst years of depression, 1922-23 and 1931-32, the farmers of South and Central Sweden suffered greater losses than those in Norrland. The improvement in 1934-35 proved satisfactory for the

GRAPH IV. — *Sweden.*

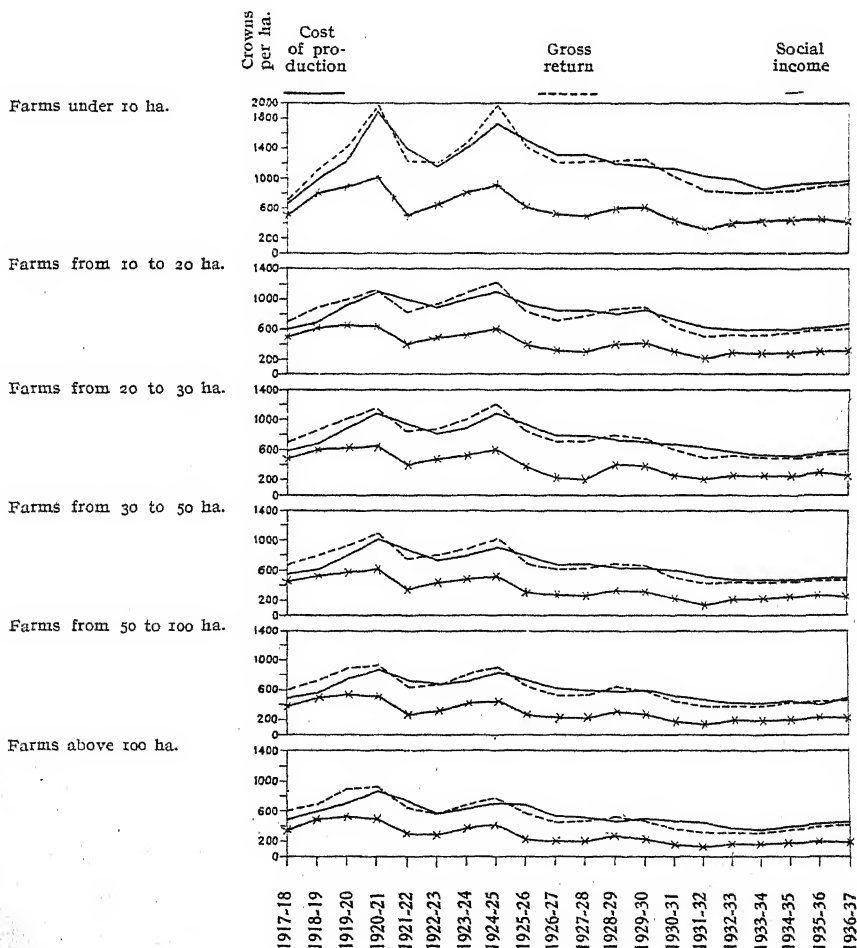
peasants of South and Central Sweden, who made considerable profits. In 1935-36 the position improved still further, the farms in South Sweden yielding a larger profit than in 1934-35, while the Norrland farms experienced a reduction in their annual deficit. The gross return of farms in Central Sweden, however, fell of the same year below the cost of production, the actual loss being about 6 crowns per 100 crowns gross return. The price index (1909-13 = 100) for livestock products rose from 107 in 1934 to 121 in 1935 and the price index for vegetable products from 107 to 108, while the price index for goods needed in farming rose from 121 to 129. In 1936 the price index for livestock products reached 131, while the index for vegetable products remained at 108, the price index for goods needed

in farming rising to 133. It was probably due to the rise in the prices of animal products that farmers in Upper Norrland were able to halve their deficit in 1936-37. The rise in prices of articles needed for running their farms and the pause in the upward movement of the prices of vegetable products led to the peasants earning a smaller profit in this year than in the year before.

Denmark.

A glance at Graph V shows three years of prosperity, 1920-21, 1924-25 and 1928-29; three years of deep depression, 1921-22, 1926-27 and 1931-32; and four years during which the gross return tended to approach the cost of production, the years between 1932-33 and 1935-36. The gains and losses experienced by Danish peasants during these three periods were as follows:

GRAPH V. — *Denmark.*



Profit or Loss on Total Farm Assets per 100 crowns Gross Return in Denmark

	1920-21	1921-22	1924-25	1926-27	1928-29	1931-32	1934-35	1935-36	1936-37
Farms of less than 10 ha.	2.26	— 14.19	7.57	— 9.07	3.16	— 20.74	— 3.67	— 3.83	— 10.62
Farms of 10 to 20 ha.	5.74	— 14.53	9.86	— 10.91	3.49	— 25.18	— 2.48	— 0.61	— 7.47
Farms of 20 to 30 ha.	6.22	— 10.39	10.61	— 12.74	5.04	— 21.27	— 2.72	— 0.53	— 7.10
Farms of 30 to 50 ha.	6.62	— 12.37	10.20	— 15.29	4.24	— 23.30	— 1.47	— 1.16	— 6.69
Farms of 50 to 100 ha.	6.55	— 15.36	9.57	— 14.95	4.96	— 23.25	— 1.58	— 1.04	— 5.65
Farms of over 100 ha.	2.50	— 11.08	8.65	— 17.77	5.80	— 26.63	— 2.49	— 0.46	— 4.17

The most prosperous year was 1924-25, the worst, 1931-32. The farms giving the best results in 1924-25 were those of from 20 to 30 and from 30 to 50 hectares; these farms, together with those of less than 10 hectares, also suffered least during the worst period of depression, 1931-32. The figures for 1934-35, 1935-36 and 1936-37 show how difficult it is to reduce costs of production under the highly industrialized system of farming used in Denmark. While the price index for agricultural products moved from 116 in 1934-35 to 115 in 1935-36 and to 118 in 1936-37, the price index for goods needed in farming moved as follows:

(1909-1914 = 100).

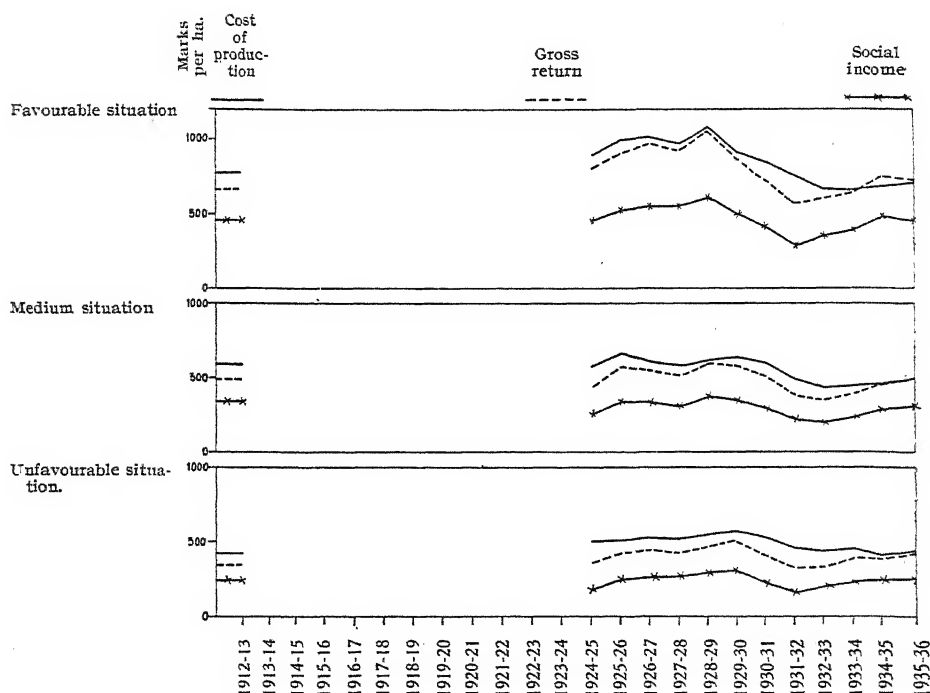
	1934-35	1935-36	1936-37
Fodder concentrates	107	106	131
Fertilizers	90	91	93
Building materials	172	176	185
Equipment	164	168	176

The considerable increase in the prices of goods needed in farming explains perhaps the greatly increased deficit in 1936-37. The best year since 1929-30 was 1935-36, when losses were reduced to a minimum, and farms of from 50 to 100 hectares even yielded a small profit to their farmers. In spite of the lower value yielded by pig fattening, the increase in the gross return from milk production, the raising of meat cattle and arable farming has been such as to lead to an increase in the gross return well above the cost of production in these farms of 50 to 100 hectares:

	Cost of production in crowns per hectare	Gross return in crowns per hectare in Denmark					
		Total	Vegetable products	Cattle	Milk	Pigs	Other products
1934-35 . . .	449	442	77	31	141	146	47
1935-36 . . .	475	480	95	40	165	130	50

Württemberg (Germany).

Before the War agriculture was being carried on at a loss in this country. We do not know what the position was during and after the War, the accounting office having resumed work only in 1924. In 1924-25 the difference between the cost of production and the gross return was greater than in 1912-13 on farms in rather unfavourable positions, less great on farms in good positions. After falling in 1927-28 the cost of production and the gross return rose in

GRAPH VI. — *Württemberg (Germany).*

1928-29, the latter more rapidly. Then, up to 1931-32 the cost of production and gross return fell, so great being the fall in the latter that the peasants on the best-placed farms lost 32 marks per 100 marks gross return and those on the less well placed farms 44 marks.

From 1933-34 the gross return began to rise again, cereals giving very good yields and being of excellent quality, while the rise in prices of milk for manufacturing also helped to improve the situation. In the next year the crops were not less satisfactory than the year before, but the main factor to raise the level of the gross return was the upward movement of the prices of animal products. The price index for slaughter cattle rose from 64.3 in 1933-34 to 70.9 in 1934-35

and the price index for animal products from 97.5 to 105.0. Peasants' profits in the middle and lower Neckar areas, where natural conditions are most favourable for farming, were 9 marks per 100 marks gross return. In the other areas the deficit was greatly reduced.

*Profit or Loss on Total Farm Assets per 100 marks Gross Return
in Württemberg.*

	1912-13	1924-25	1928-29	1931-32	1934-35	1935-36	1936-37
Favourably situated farms. .	— 16.12	— 11.43	— 1.53	— 31.65	9.31	2.94	—
Less favourably situated farms	— 20.04	— 30.32	— 6.65	— 30.43	— 2.52	— 0.13	—
Unfavourably situated farms	— 21.74	— 36.71	— 14.87	— 44.05	— 5.10	— 3.53	—

In 1935-36 farms situated in an unfavourable position and those in an average position gave better results than in the previous year. On the farms in a favourable position the average profit to farmers fell to about 7 marks, per 100 marks gross return, the gross return itself also falling as the crops had suffered from drought. In 1934-35, the yield per hectare in the middle and lower Neckar area was 29.2 quintals for wheat, 29.4 for rye, 29.9 for barley, 32.9 for oats and 203 for potatoes; in 1936 only 24.9 quintals of wheat, 24.6 of rye, 26.4 of barley, 27.5 of oats and 182 of potatoes were harvested. The changes in social income, which have been about the same as the changes in gross returns, are shown in the following table.

Social Income per hectare.

(1912-13 = 100).

	1928-29	1931-32	1933-34	1934-35	1935-36
Favourably situated farms	129	62	82	102	94
Less favourably situated farms	107	62	66	81	87
Unfavourably situated farms	116	65	91	96	101

(to be continued).

INTERNATIONAL CHRONICLE OF AGRICULTURE**ITALY**

As regards price movements in the home market, economic conditions in Italy have been characterized by a tendency to relative stability of wholesale prices, while in foreign trade there has been an improvement in the balance of trade.

According to the figures of the Central Institute of Statistics, the movement of trade with foreign countries during the last two years has been as follows:

	1937 (Thousand lire)	1938
Imports	13,592,185	10,918,183
Exports	7,853,086	7,959,547
Balance	<u>— 5,739,099</u>	<u>— 2,958,636</u>

The value of exports in 1938 was slightly (1.3 per cent.) above that in 1937, while imports fell by 19.7 per cent., mainly as a result of greatly reduced purchases of wheat, which fell from 1,387,541,000 lire in 1937 to 216,450,000 lire in 1938. Even leaving the value of wheat out of account, however, there is still a fall in imports of 12 per cent. This fall is partly to be attributed to the fall in the prices of imported goods. The excess of imports has thus been reduced from 5,739 millions in 1937 to 2,959 millions in 1938, a fall of 2,780 million lire.

The value of Italy's foreign trade is shown below:

	1937 (Thousand lire)	1938
<i>Imports</i>		
Raw materials for industry	5,989,483	5,212,263
Semi-manufactured materials for industry	2,889,562	2,375,422
Finished goods	1,907,861	2,013,047
Foodstuffs and living animals	2,805,279	1,317,451
Total	<u>13,592,185</u>	<u>10,918,183</u>
<i>Exports</i>		
Raw materials for industry	947,859	807,371
Semi-manufactured materials for industry	1,722,973	1,579,630
Finished goods	2,724,234	2,864,268
Foodstuffs and living animals	2,458,020	2,708,278
Total	<u>7,853,086</u>	<u>7,959,547</u>

During the two years considered, there has been a large reduction in the value of imports of foodstuffs and live animals, their share of total imports falling from 20.6 per cent. to 12.1 per cent. In absolute figures imports of raw materials have also fallen; imports of oilseeds fell from 513.1 million lire in 1937 to 199.5 million lire in 1938; of cotton from 1,041.1 million to 807.4 million lire and of wool from 434 to 340 millions.

In exports, the percentage of foodstuffs and living animals exported increased from 31.3 to 34.1 per cent. and of finished goods from 34.7 to 36 per cent. Foodstuffs earned about 250 million lire, mainly as a result of increases in fruit and market garden products.

The Government has recently given the following instructions for the exportation of farm products, which consist largely of fruit and market garden products:

- a. to turn more and more to the production of higher-priced varieties;
- b. to revise methods of cultivation so as to keep costs of production within the limits set by competition;
- c. to raise the value of the products by bettering their quality;
- d. to improve the organization of transport and the costs involved;
- e. to reorganize the home market so as to increase consumption and regulate production.

New economic organization of agricultural producers.

In the Chronicle of last December we spoke of the Law of June 16, 1938 which set up provincial consortia of agricultural producers. We saw how they are defined as organizations to control and develop the work of producers in the provinces, and that this control and development is to be carried out in accordance with the instructions of the Ministry of Agriculture and Forests and the farm corporations.

The consortium, which is composed of all the landowners and tenants of the province, must carry out the production plans for autarchy. By the regulations published in the Royal Decree of February 2, 1939 (¹), the consortium consists of six sections, representing respectively the cultivation of cereals, the vine, the olive, fruit and market gardening, textile fibres and animal husbandry. Other sections may be formed, adding to or replacing those mentioned.

The sections are intended to protect the interests of agricultural producers "in harmony with the economic interests of the nation". In addition they are to encourage technical and economic progress in the branch of production which they direct.

Technical progress is encouraged, *inter alia*, by spreading the knowledge of appropriate systems of cultivation and by the campaign against plant diseases and insect pests. The Government has already appropriated 100 million lire for this campaign.

In the economic sphere the sections are required to regulate crops by the system of "crop licences" already applied to hemp, the castor oil plant, sugar beet and tomatoes. They must also regulate the marketing of the products.

The sections shall:

- a. regulate the output of the products and inform the competent authorities of faults and imperfections and infringements of the laws and corporative regulations;
- b. undertake the accumulation of stocks of goods, and the taking of the measures necessary for paying the producers by whom the goods were supplied or selling these goods;
- c. construct, or contribute to the construction of warehouses and equipment for storing, sorting and processing the products and by-products.

(¹) *Gazzetta Ufficiale del Regno d'Italia*, February 16, 1939, No. 39.

The law entrusts the administration of the *ammassi* or collective stocks of products to the consortia. In operations connected with the preservation, processing and sale of the products so stocked they may employ the services of the agricultural consortia of the provinces, which in this matter will function as executive bodies.

The production plans worked out by the corporations are regulated to adapt national production as far as possible to the needs of consumption. They will be applied by the new consortia with the concurrence of the parties concerned, the employers and the workers.

These measures will enable the producers' consortia to undertake obligations towards the State, the syndical organizations and the various processing industries "to furnish a given quantity of products or to place a given area under a given crop".

As we have said, the former agricultural consortia, converted from co-operative societies with limited liability into public utility associations ⁽¹⁾, work in close collaboration with the provincial producers' organization. In all the provinces they have been formed compulsorily into a single body called a provincial agricultural consortium, which in general performs the following operations under the Ministerial Order of February 2, 1939 ⁽²⁾:

a. it buys anywhere on its own account, or for the account of third parties, and distributes among the farmers of the province what they may require for their farms and the related industries;

b. it sells for cash or on credit either at home or abroad its own products or those of the provincial farmers, to the account of the provincial producers' consortia;

c. it administers directly, or in collaboration with the provincial producers' consortia, factories for the production of commodities used in agriculture and the processing of agricultural products;

d. it may hire out or sell agricultural machines and equipment to the farmers of the province;

e. it procures for, and assists farmers of the province to obtain, agricultural credit, also making use of farm credit in kind;

f. it may construct or assist in the construction of warehouses, laboratories, workshops, refrigerating plant, for the purchase and sale, processing, preservation, preparation or manufacture of commodities for the use of farmers and farm produce.

These organizations are forbidden to undertake any speculative operations or commercial operations not connected with agriculture.

Another type of economic organization is now represented by the National Association of Beet Growers, the Association for oil-yielding Herbaceous Plants and the Union for Oil Fuels, Lubricants and Farm Motors. The first two regulate the cultivation respectively of sugar-beet and oil-yielding plants and arrange contracts with manufacturers for the supply of the products. By such "collective economic agreements" the farmers are guaranteed equitable conditions for the marketing of their produce.

All the above types of agricultural organization are of a public nature; in addition private organizations such as co-operative wine-cellars, co-operative cheese-dairies, co-operative organizations for fruit growing and market gardening, and co-operative drying-rooms for cocoons have been formed to eliminate unnecessary middle-men and to ensure remunerative prices for the principal products.

⁽¹⁾ See the Chronicle cited above.

⁽²⁾ *Gazzetta Ufficiale*, February 4, 1939, No. 29.

Revision of national employment regulations:

The Decree-Law of December 21, 1938 ⁽¹⁾ changed the organization of the labour market. The Decree lays down that the employment of workers is "a public concern in the interest of national production and the State". Hence persons charged with the appointment of labour must be considered as "public officers". The finding of employment is entrusted to the professional associations of labour, which are considered the most suitable bodies for this purpose.

The Decree-Law of December 21, 1938 makes it a basic rule that the worker should be engaged by the employment bureau dealing with his own occupation. A distinction is made between the demand for a specified individual and the demand for a certain number of unspecified workers. This distinction is important for the agricultural section, where it is recognized that as well as confidence between employer and worker, ability on the part of the worker is necessary and must be demonstrated, not only in the interests of the farm in question, but also of production in general. Thus employers are allowed to engage labour directly in all cases where there is a risk of damage to persons, raw materials or equipment, or to ensure the continuity of the work. These cases occur principally under conditions requiring the continuity of labour or where work is urgent.

Other exceptions to the principle that labour should be engaged through the intermediary of employment bureaus refer to:

- a. the employer's relatives, not beyond the third degree of kinship, living with him and at his charge;
- b. the managing staff with responsibility for the development of the enterprise, that is to say all those included in the managing and technical staff;
- c. all workers working in "co-participation", including *métayers*, and sharecroppers in general; clearly where there is or should be a relationship of confidence the workers cannot be employed at random;
- d. cases in which the demand for labour must be specific, i. e. where the demand is for workers qualified for a given work requiring special knowledge.

The labour officers must satisfy the needs of employers, by obtaining workers with the special qualifications asked for. Professional ability being equal, preference will be given to applicants for employment in accordance with (*inter alia*) the position of the family and the number of children supported. The worker is therefore no longer considered as a single individual but in relation to his family.

For the engagement of agricultural workers, the confederation of Farm Labourers has set up an employment bureau in each province and is organizing a network of communal bureaux. There will be about 7,000 agricultural employment bureaux operating throughout Italy.

To enable an equitable distribution of labour in accordance with the conditions in each zone to be made, the Confederation has drawn up a worker's card which will make it possible to follow the man's work and which will also show his economic condition and the position of his family.

The employment service is superintended by the Ministry of Corporations, to which is attached the Central Employment Commission. This organization must give general administrative and technical directions to assure the regulation of employment and its co-ordination with internal migration and emigration abroad.

(1) *Gazzetta Ufficiale*, December 30, 1938, No. 298.

Price regulation and adjustment of wages.

To avoid market fluctuations and unjustified increases in the cost of living a Decree-Law of June 16, 1938 ⁽¹⁾ authorized the Central Corporative Committee to fix maximum selling prices for goods of every description. However, if there occurs some disequilibrium between costs and prices which is harmful to production, the Government may take exceptional measures. To achieve a proper regulation of prices, collective agreements are already in operation in certain branches of production. The corporation may be requested to examine questions relating to the prices of goods and services, which matters also fall within the scope of the activities of the advisory committees set up by the Decree-Law of January 4, 1938.

The presiding committees of the provincial councils of the corporations ascertain and regulate prices in their own provinces, and periodically publish a list of maximum wholesale and retail prices for the most widely consumed goods. This list is compulsory for sales occurring in the territory of the main commune of the province, while for the other communes of the province special lists are periodically published. The sale at prices above those given in these lists is forbidden.

By the same decree the prohibition against increasing the leases paid on urban real estate and rural property, dated October 5, 1936 (stabilization of the lira) is extended to December 31, 1940, even if other tenants or tenant-farmers take over the use of the property. In the year following the expiration of the lease the tenant may reclaim anything he may have paid in excess.

Another regulation enables the Ministry of Corporations to order enquiries in regard to commodity stocks held in farms, warehouses, etc.

As part of the general adjustment of wages to the cost of living, the central Corporative Committee has approved the revision of the wages of agricultural labourers, agreed upon by the two Confederations of Agriculture. The new schedules came into force on March 23, 1939. By this agreement wages under collective contracts at present in force are increased by 8 per cent. for regular labour, day-labourers and specialised labour. However, farm labourers of 12 provinces in the basin of the Po, who were granted an earlier increase of 6 per cent. by the Interconfederal Agreement of October 8, 1938, will now only receive an increase of 6.5 per cent.

Of wages paid in money and kind, the percentage increase provided affects only the part paid in money.

The money part of the minimum salaries fixed by contract, and the current salaries of administrative and technical employees of farms and forest undertakings, are increased by 8 per cent.

Inheritance of farms.

The legal commission to draw up the third book of the new Civil Code accepted the principle that farms shall be inherited as a whole.

When one or several rural properties constituting an economic unit, the revenue from which does not exceed the normal needs of a farm family, form part of the inheritance, and when the deceased does not name the inheritor, the commission has decided that this unit will be allotted in its entirety, as part of the inheritance, with tools, equipment, and the deadstock and livestock belonging to it, to that inheritor who is prepared to accept the inheritance and who is deemed capable of farming the properties.

(1) *Gazzetta Ufficiale*, September 13, 1938, No. 209.

A Government regulation will fix for each zone, taking account of the estimates of the land survey, the maximum and minimum areas corresponding to the needs of a normal farm family. If several eligible inheritors claim the inheritance, and the deceased has not named an heir, the judicial authority will choose the one who does or could farm the properties mainly with the work of himself and of his family, and who is in a position to improve these properties. If these conditions are fulfilled by more than one claimant, the one descending in the direct male line will be chosen. Other conditions being equal, a claimant who has already farmed the properties or the one with the largest number of male children will be preferred.

The properties may also be awarded to several co-heirs asking to farm them in common.

If the heir is not in a position to repay the shares due to his co-heirs without contracting debts too onerous for the farm, the judicial authority may authorize him to repay the co-heirs in instalments, including also the part due to them from the revenue of the farm. The farm continues to be held in common with the co-heirs throughout the period of repayment.

UNION OF SOUTH AFRICA

With the exception of the gold-mining industry all branches of the economic life of the Union suffered last year from the recession in world markets and the political uncertainty in Europe. Nevertheless the decline which has taken place in South Africa is not considered unfavourably, and the Union still counts as one of the economically soundest countries of the world. The Finance Minister in his budget speech of March 15, 1939 was able to point to a surplus of £1,650,000 instead of the deficit of £100,000 of his original estimate, this favourable development being due to the greater receipts from the taxation of the gold-mines and other mining concessions.

The volume of foreign trade reckoned according to value has shown a considerable decline as against 1937, especially as regards the export of agricultural products. However, by comparison with the year 1930-34 preceding the revival, this decline in foreign trade may rather be considered as a healthy consolidation.

Despite a record gold production of 833,903 lb. in 1938 as against 804,692 lb. in the preceding year, the export of gold bars has declined in value from £82.7 million in 1937 to £48 million in 1938. But when considering the gold exports, account must also be taken of the earmarked gold, that is to say of the gold that was deposited for safe-keeping with the South African banks after the September crisis to be held to the account of overseas buyers. Thus the gold reserves of the South African Reserve Bank have risen by nearly 8 million in the course of 1938.

Foreign Trade of the South African Union.

(Pounds sterling).

	1930-34 (Average)	1937	1938
Exports	80,380,842	125,395,436	83,384,006 (¹) (104,099,000)
Imports	53,223,244	103,382,242	95,881,850
	+ 27,157,598	+ 22,013,194	— 12,497,884 + (¹) (8,217,150)

(¹) Including the earmarked gold.

Principal Agricultural Exports of the Union.

	Quantity (Thousands lb.)		Value (Pounds sterling)	
	1937	1938	1937	1938
Angora hair	4,560	5,111	476,400	353,100
Skins and hides	56,800	64,700	2,395,400	1,440,000
Wool, greasy and scoured	237,300	244,400	12,645,400	8,983,400
Wattle bark and extract	244,870	209,800	1,000,900	908,000
Butter	7,155	3,530	383,500	213,600
Maize	1,711,000	440,800	3,194,100	960,700
Maize meal	426,000	154,000	867,900	334,100
Citrus fruits	4,100	3,500	2,056,400	1,373,400
Deciduous fruits	2,300	2,250	634,600	622,300
Grapes	2,000	2,250	587,800	655,100
Dried fruits	15,500	22,550	262,500	372,100
Meat, fresh and frozen	17,700	4,200	253,200	71,700
Sugar	496,000	475,000	1,944,000	1,898,500
Wines	1,700	1,900	233,500	265,100

As regards agricultural products, the exports of maize and wool were most adversely affected. Despite an increase in the quantity of wool exported from 237.3 million lb. in 1937 to 244.4 million lb. in 1938 the value of the wool exports showed a noticeable decline, partly due to the falling price levels in the world market, but partly due also to the growing world production of artificial fibres. The decline in the maize exports is mainly explained by the maize harvests having been considerably worse than in the previous year as a result of drought and delayed rains (3,521.9 million lb. in 1937-38 as against 5,621.8 million lb. in 1936-37).

Corresponding to the decline in purchasing power of the farming population there has also been a decline in imports, particularly of textiles, machines and motor vehicles. Increases of imports were shown only by foodstuffs, which rose from £4,781,450 in 1937 to £4,920,000 in 1938, by drink which rose from £604,000 to £646,000, and by fodder which rose from 7.45 million lb. worth £35,000 to 9.2 million lb. worth £47,000. Most striking of all, however, was the increase in wheat imports from 1.0 million lb. worth £5,780 in 1937 to 157.0 million lb. worth £459,700 in 1938.

The prospects for the maize harvest are, according to the latest estimates, exceptionally favourable, so that 6.000 million lb. are being expected for 1939. The 1938-39 wheat harvest amounted to 1,045 million lb. as against 609.4 million lb. in the preceding year, the tobacco crop to 23.9 million lb. as against 20.6 million lb. and sugar production to 1,041.9 million lb. as against 1,014.4 million lb. The wool clip for 1938-39 amounted to 261,000,000 lb. (greasy) as against 246,000,000 lb. in 1937-38, and is favourably judged as regards quality, although higher prices are hardly to be hoped for so long as the present international tension lasts.

Industrial prices have shown a much quicker recovery than agricultural ones, and agricultural wage-rates cannot keep pace with industrial wage-rates, so that an increasing flight from the land is the inevitable consequence.

To summarize, one can say that owing to the rise in gold prices and the consequent expansion in the mining industries South Africa's general economic situation is one of moderate prosperity (¹). As regards the weak position of agriculture, that

¹ See the Annual Report of the Minister of Agriculture (August 1937-August 1938) in *Farming Africa*, December 1938; *Zuid-Afrika*, March 1939 and following numbers.

is to be improved by new trading agreements, by the development of the system of market regulation initiated in 1937, and by other State measures of support and development.

Trade agreements.

The agreement between the Union and *Germany* was renewed on September 19, 1938 for the fifth time. The Governments of the two countries had agreed to conclude the new agreement on September 1, that is, two months before the expiration of the old one, so that Germany should be able to make her wool purchases already at the beginning of the new wool season. However, as a consequence of the political crisis in Europe the negotiations were delayed some weeks. The amount of the agreement was provisionally fixed at £6,355,000, as against £5,686,000 in the preceding year, roughly corresponding to the value of the trade in the calendar year 1937. Agricultural products accounted for £5,200,000 in the September agreement, the German wool purchases to the value of £3,760,000 constituting easily the main item. In the middle of May 1939, however, the amount of the agreement was increased to £6,700,000 of which £5,475,000 is to be accounted for by agricultural products, the German wool purchases being increased to £4,000,000 under the amended agreement. Payment will be made in German goods.

In the wool season 1938-39 Germany purchased about 40 per cent. of the Union's wool output, and is now the chief market for the wool exports of the Union. Critics have wished to attribute the decline in wool prices to the German-South African Agreement, but the Secretary of State for Agriculture, Dr Viljoen, pointed to the sure market guaranteed by the Agreement, and declared that the decline in wool prices must be attributed to the recession which has taken place in the world markets. At the annual congress of the "National Woolgrowers' Association" (Cape branch), held at the end of March 1939, it was resolved to request the Government that the payment facilities granted to Germany by the terms of the Agreement be extended also to the other wool-importing countries.

Further trade agreements are in course of preparation, and negotiations are already being carried on between the Union and the United Kingdom, as also with France, Brazil, Poland and Egypt.

The new agreement with the *United Kingdom* is to contain a modification of the preferential tariffs accorded at the Ottawa Conference, the value of which has been adversely affected by the conclusion of the Anglo-American Trade Agreement of November 1938. The lowering of the import duties on American apples, pears and preserved fruits promised by the United Kingdom means for the South African fruit-growers and exporters to Great Britain the loss of their former profit margin. In other respects, however, the Anglo-American Trade Agreement was welcomed in South African economic circles. Much is hoped for especially from the lowering of the import duties on British woollen goods promised by the U. S. A., which is expected to stimulate the Union's wool exports. Favourable consequences are also expected from the promised co-operation of American fruit exporters with the Empire Fruit Council as regards the export of fresh, dried and preserved fruit, which is so important for South Africa.

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Market regulations under the Marketing Act.

The Marketing Act of June 1937 forms the basis of a carefully planned system of regulation of agricultural marketing. The production and sale of the main agricultural products are controlled and in the case of their sale to some extent monopolised by marketing boards either already existing or shortly to be created, which are all subordinate to the National Marketing Council ⁽¹⁾. The Law provides for the drawing up of a series of marketing schemes, the plans for which are first to be laid before the Minister of Agriculture for his provisional approval, then to be passed to the Marketing Council for discussion, and after examination of all proposed suggestions and objections to be presented to the Governor-General for final approval.

Already in the second year of its existence a modification of the Marketing Act proved to be necessary. Numerous difficulties arose, e.g. as regards the transfer of funds from the earlier boards to the newly-founded Board, but mainly because the wording of the Law made an effective control of the producers and the importers difficult.

Marketing Amendment Act. — For this reason the Marketing Amendment Act ⁽²⁾ of September 1938 includes a wider definition of "producer", which for the purposes of any marketing scheme under the Act now includes those who import or process a product. Thus for the purposes of the marketing scheme a product imported into the Union counts as a product of the Union, except where expressly stipulated to the contrary. However, the distinction between import duties and the levies imposed on the products of the Union for the benefit of the Boards is still preserved. The powers of control of a Board are extended from production to include also consumption, which may be subjected to the quota system or even prohibited altogether within the framework of a marketing system. Furthermore the Boards set up under the Marketing Act are empowered to collect together the funds of any former board or boards of the same branch of the national economy in a special Fund for the furthering of the marketing system where they may be used at discretion.

Maize Control Scheme. — Under the maize scheme of last year ⁽³⁾ the Board imposed a levy on all maize sales within the country, which was originally fixed at 1 shilling and later increased to 18 pence per bag. From the funds thus accruing the Board granted export subsidies calculated according to overseas prices, which subsidies were originally fixed at 27 pence per bag, then at 39 pence per bag, and since February of this year at 30 pence per bag. Of last year's harvest, of 19 million bags of 200 lb., 4.5 million were exported under permits granted by the Board, whilst 5.5 million bags were sold in the home market, the rest remaining with the producers. However, the harvest and consequently the export surplus had been underestimated at

⁽¹⁾ See the May 1938 number of this Chronicle, p. 255

⁽²⁾ See *The Union of South Africa, Government Gazette*, No. 2572 of September 30, 1938. The Law has retroactive effect as from the entry into force of the Marketing Act (No. 26 of 1937). For a criticism see the reports of the Secretary of State for Agriculture, Dr. VILJOEN, and the Secretary of the Meat Control Board, J. R. McLOUGHLIN, together with the reply of Prof. RICHARDS in the *South African Journal of Economics*, September 1938, pp. 280-312.

⁽³⁾ See the *Government Gazette* No. 2537 of July 17, 1938. Compare description of contents in the May 1938 number of this Chronicle.

the beginning of the season, so that ultimately the revenues of the Board proved insufficient for the payment of both the export subsidies and the premiums to the farmers, with the result that it became necessary to appeal for the assistance of the State.

As a harvest of about 30 million bags is expected for 1939 with an export surplus of 15 million bags, whilst home consumption only amounts to some 5 or 5.5 million bags, and prices on the world market are falling, it clearly became necessary to set up a new system for the collection of the internal levies and the payments to producers and exporters.

Under the new maize plan, known as the "Mealie Control Scheme" ⁽¹⁾, the exporter no longer receives any specially calculated export subsidies, but the Board restores him the amount of the levy for the same quantity of maize when bought from the producer. Only such dealers as are registered with the Board are allowed to buy maize from the farmers. The Board retains the right to subject maize exports to quotas by the grant of permits. The Maize Levy Fund receives in addition to the already mentioned levy a small processing tax. The surplus remaining to the Board at the end of the season when all payments to exporters have been made is paid out to the maize growers by the Board in the form of premiums calculated on a sliding scale according to the amount sold by the producer. However, it is intended to fix an upper limit above which the grower is no longer entitled to such premiums. A further innovation in favour of the small farmers, who must mostly sell their produce already at the beginning of the season, empowers the Board to pay such growers in advance a certain fraction fixed at its own discretion, of the premiums which will be due to them within the course of the same financial year already at the time when they affect their sales. Growers in the Native Reserves do not receive premiums, as most of the coloured agriculturists produce only for their own consumption; but a special account will be opened in favour of the natives.

In short, the grower receives the net price prevailing in the world market, while home consumers pay a price above that of the world market.

Wheat Control Scheme. — The carrying out of the Wheat Control Scheme ⁽²⁾ is entrusted to the Wheat Industry Control Board, which was first set up in 1935 but has recently been reconstituted. It is composed of 18 members nominated by the Governor-General, amongst whom are to be found representatives of the wheat-growers and wheat-processors of every sort and also a representative of the consumers from the Consumers' Advisory Committee set up by the Marketing Act. The functions of the Board have, however, been somewhat limited in comparison with the preliminary plans of the first half of 1938. The powers to direct exports to particular foreign markets, to impose a levy on sales and to set up an equalisation fund have been abolished. The Board, however, imposes a unified levy on each bag of ground or otherwise processed wheat, which already at the time of the decreeing of the Scheme was fixed at 1 shilling per bag of 200 lb. Up to 35 bags per year for the use of the grower remain duty free. Registration is compulsory for all millers and other processors of wheat or wheaten products. The Board may require a report on wheat matters from anyone engaging in the production, processing or selling of wheat. Furthermore

⁽¹⁾ See the text of the law which entered into force on May 1, 1939 in the *Government Gazette* No. 2629 of April 21, 1939. Compare *Farmer's Weekly*, May 3, 1939, p. 535.

⁽²⁾ *Government Gazette*, No. 2574 of October 5, 1938, entering into force on October 5, 1938. See *Farmer's Weekly*, October 12 and October 19, 1938.

the Board is empowered to use at its discretion the funds received for the development of the production and sale of wheat, to grant loans, to buy up and store wheat in any quantities thought fit, to fix maximum and minimum prices and to monopolize the right to purchase wheat. Already in November wheat producers were forbidden to sell their wheat to anyone but the Board. (1).

Dried Fruit Scheme. — The Dried Fruit Scheme (2) was enacted with only slight modifications in the form described in the May, 1938 number of this Chronicle. The director of the economic section of the Ministry of Agriculture, however, pointed in his annual report to the pressing necessity of a more closely knit organisation in order to restrict the excess production which had risen during the years of the revival, and to see to the improvement of the quality of the fruit. Last year in the principal foreign markets dried fruits from the Union were valued at 5 to 10 shillings per hundredweight (112 lb.) less than those from other producing countries (3).

Tobacco Marketing Scheme. — The Tobacco Marketing Scheme was also adopted very much in the form proposed last year (4). Owing to its closely-knit organisation tobacco indeed belongs to the most firmly established branches of Union agriculture.

A decision of the Board has prohibited further duty-free imports of Turkish tobacco, as there still remain considerable stocks of the home crop from last year.

Meat Marketing Scheme (5). — The Live Stock and Meat Industries Control Board set up in 1934 is to be expanded to 18 members, all to be nominated by the Governor-General. The Board levies a slaughter tax on cattle, sheep and pigs. Live animals which are imported into the Union for subsequent re-export and are slaughtered in the Union are exempt from this tax. Of the revenue thus accruing a certain percentage (60 per cent.) fixed by the Board and approved by the Ministry will be used for the payment of export subsidies. The Board is further empowered to pay premiums on quality to the producers of high-value slaughter-cattle for home consumption, and to grant breeders and associations of breeders loans up to a proportion of the export value to be determined by the Board. It can limit the right of sale for live animals and for the meat trade to possessors of a trading permit issued by the Board, and can introduce compulsory registration for the suppliers of live cattle to the districts under its control. For the registration of home and export prices an Export and Stabilisation Fund is to be created, but the Board is not, however, empowered to fix maximum or minimum prices.

Chicory Roots Marketing Scheme. (6). — The control of the marketing of chicory roots, the production of which is limited to three adjoining districts, is reserved exclusively to the producers. Only planters elect the Board or are eligible for election to it.

(1) *Government Gazette*, No. 2585 of November 11, 1938.

(2) Text in the *Government Gazette*, No. 1962 of October 28, 1938. Entered into force on December 1, 1938.

(3) Annual report of the Chief of the Division of Economics and Markets, Dr. GROSSKOPF in *Farmer's Weekly* January 11, 1939, p. 1145.

(4) Text in *Government Gazette*, No. 2617 of March 21, 1939, entering into force on April 1, 1939. See the description in the May 1938 number of this Chronicle.

(5) Only provisionally approved by the Minister. For text see the *Government Gazette*, No. 2580 of October 28, 1938.

(6) Only provisionally approved. See the *Government Gazette*, No. 2583 of November 4, 1938.

The financial powers and rights of control are of the usual type. The Board is empowered to impose a levy per 100 lb. of chicory roots produced according to a sliding scale as also export duties, to introduce compulsory registration for producers and to limit the sale of the product through certain authorised channels.

Schemes in preparation. — The enactment of marketing schemes for dairy products ⁽¹⁾ has so far had to be postponed. Difficulties arise mainly owing to the over-expansion of the dairy industry during the last 10 to 15 years, as a consequence of the large-scale speculation resulting from the especially wide gap between summer and winter production and prices. The Dairy Industry Control Board founded in 1930 proved unable to check this over-expansion, despite its prohibitions on new entries into the industry. Within the framework of the new marketing plans the struggle seems to be centering around the authorisation of the Board to limit the number of uneconomic and superfluous concerns by compulsory purchase. The productions of dairy butter has risen by 10 million lb. from 1930 to 1938. The portion of the selling price to consumers received by the producer amount to 50-55 per cent. in the case of butter, to 30-40 per cent., for cheese, and (in Natal) to 25-30 per cent. for milk.

The outline of a marketing scheme for fruits coming from deciduous trees ⁽²⁾ was passed to the Deciduous Exchange, that for a wool marketing plan to the Wool Council ⁽³⁾.

Miscellaneous:

Reduced transport charges. — The Finance Minister in his budget speech of March 1939 promised for the ensuing financial year a reduction in railway freight charges for agricultural products, the railways to be compensated by a grant of £800,000 from the State.

Loans for fruit production. — Since the summer of 1938 loans up to £150 and repayable within five years have been granted by the State to impoverished farmers in order to maintain fruit farms which have become unprofitable since 1937. The loans for the development of export comprised within the £150 will not be paid in cash but in the form of orders on the Railways and Harbour Administration ⁽⁴⁾.

Agro-economic Survey. — The agro-economic survey carried out by the State is to lead to a division of the Union into 22 agricultural districts, each such district being composed only of areas of the same climate and type of soil. Only when this undertaking has been completed will it be possible to aid farmers with better advice and to check the flight from the land. The survey was begun some years ago and has as yet been applied to 11 districts.

Purchase of land for coloured people. — At the opening of Parliament in the beginning of February the Governor-General announced the coming revision of the Native Trust and Land Act of 1936. Lands were already being bought for the natives in order to abolish the small scattered reserves and to compensate the natives with lands elsewhere, thus creating several large contiguous areas for natives and for whites.

⁽¹⁾ See this Chronicle for May 1938, p. 260; also *Farmer's Weekly*, October 19, 1938, p. 246. —

⁽²⁾ *Farmer's Weekly*, October 12, 1938, p. 174. — ⁽³⁾ Text in *Organised Wool Farmer*, Wool Council Prudential House, Pretoria. — ⁽⁴⁾ *Farming in South Africa*, November 1938, p. 424.

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(*) List of abbreviations: bihebd. (biweekly); bimens. (twice monthly); bimestr. (every two months); déc. (every ten days); étr. (foreign price); fasc. (copy); hebd. (weekly); int. (home price); irr. (irregular); mens. (monthly); n° (number); N. S. (new series); p. a. (per annum); q. (daily); sem. (half yearly); s. (series); trihebd. (every three weeks); v. (volume); trim. (quarterly).

N. B. — Between brackets [/] are given translations and explanatory notes not appearing in the title of the review.

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Dott. VALENTINO DORE, *gerente responsabile*.

AGRICULTURAL STATISTICS

MONTHLY CROP REPORT AND AGRICULTURAL STATISTICS

The following explanations refer to crop conditions quoted in the crop notes and in the tables. — Crop condition according to the system of the country: Germany, Hungary, Luxemburg and Czecho-Slovakia: 1 = excellent, 2 = good, 3 = average, 4 = bad, 5 = very bad; Finland: 8 = very good, 6 = above the average, 5 = average; France: 100 = excellent, 70 = good, 60 = fairly good, 50 = average, 30 = bad; Estonia, Latvia, Lithuania, Poland, Romania and Sweden: 5 = excellent, 4 = good, 3 = average, 2 = bad, 1 = very bad; Netherlands: 90 = excellent, 70 = good, 60 = fairly good, 50 = below average; Portugal: 100 = excellent, 80 = good, 60 = average, 40 = bad, 20 = very bad; Switzerland: 100 = excellent, 90 = very good, 75 = good, 60 = fairly good, 50 = average, 40 = rather bad, 30 = bad, 10 = very bad; U. S. S. R.: 5 = good, 4 = above the average, 3 = average, 2 = below average, 1 = bad; Canada: 100 = crop condition promising a yield equivalent to the average yield of a long series of years; United States: 100 = crop condition which promises a normal yield; Egypt: 100 = crop condition which promises a yield equal to the average yield of the last five years. — For other countries the system of the Institute is employed: 100 = crop condition which promises a yield equal to the average of the last ten years.

See latest information at the end of the Crop Report.

VEGETAL PRODUCTION

World wheat production in 1938 and the present condition of winter wheat crops.

Since the publication of the December Crop Report and Agricultural Statistics, some new and many revised estimates have been received by the Institute. These result in slight increases in the totals of production of the various continents given last month.

In Europe the only countries which had not published their 1938 estimates of production, namely Ireland and Northern Ireland, issued them this month. Their figures show a very large aggregate crop, definitely better than last year and the average, due to both an increase in acreage and a high yield per acre.

One of the most important revisions is that of Yugoslavia where production is put at 10.4 million bushels higher than the first forecast, and thus would be one of the largest wheat crops in this country. Another modification is in the Romanian crop which is now estimated at a slightly lower figure (180 against 181.5 million bushels). Thus, of the four Danubian countries, three report productions in 1938 which are considerably higher than their former records and the fourth, namely Hungary, has a crop which is close to the record of 1928. The aggregate wheat production of Europe, which each month is raised by new estimates, has again been increased during January by 7 million bushels over the total given last month. European production in 1938, accord-

ing to these latest estimates, is about 91 million bushels higher than the former record crop of 1933.

In North America the final estimate of production in Canada, recently published, shows only a slight increase on the figure published in November. Thus the country which is normally the world's largest exporter, after five years of poor crops, has had a large crop, which however, is still well below the average of the ten years 1923 to 1932.

As a result of this revision the aggregate production of North and Central America is raised by about 3 million bushels on last month's figure and is one of the largest crops of the last 15 years, but is well below the three record years 1927, 1928 and 1930.

In Asia, production in Syria is slightly higher than had been calculated on the basis of the acreage and the yield indicated by crop condition. The aggregate production in Asia is thus 4 million bushels higher. This continent (excluding China) thus attained in 1938 a record figure of wheat production.

In Africa, Algeria has revised her former estimate with a considerable increase (from 32.1 to 33.7 million bushels). The second estimate of the Union of South Africa is practically unchanged from the former estimate. Aggregate production in Africa is thus raised from 132 to 136 million bushels, which is about an average figure.

Of the South American countries, Uruguay has cabled to the Institute her first wheat crop forecast, which, though definitely below the average, is somewhat higher than last year's figure. This year's excellent prospects have not been fully realized owing to late frost and hail. In Chile about an average crop is expected. In Argentina the season continued to be favourable for threshing and the ripening of late crops. It is believed that the first crop forecast, published last month, may be slightly increased. The aggregate production of this continent is thus raised from 371 to 375 million bushels. This figure is second only to the record of 1928 (400 million bushels).

Australia finally cabled to the Institute on January 19 that harvesting, which took place in favourable conditions, was finished in most of the wheat growing areas. Results exceed forecasts in Western Australia. In South Australia and New South Wales the specific weight of the grain is high. It is confirmed that yields in Victoria are very low. In New Zealand the wheat crop suffered from drought. Nevertheless a rather larger crop is expected than had been hoped for a month earlier. The aggregate production of Oceania is thus raised by about 4 million bushels from 147 to 151 millions, but it is still well below the average.

The estimates and revisions received by the Institute during January thus involve only slight modification of the totals for the various continents but all these revisions are in an upward direction: an increase of 7 million bushels in the estimate for Europe, of 3 millions for North America and of 4 millions for South America, Asia, Africa, and Oceania. Thus the world total of wheat production in 1938 is raised by 26 million bushels on last month's estimate.

World wheat production (1)
(million bushels).

YEARS	Europe (2)	North America	South America	Asia (2)	Africa	Oceania	Total (2)	U.S.S.R.
Average 1926-1930	1,342	1,315	300	518	117	164	3,756	836
1931	1,437	1,277	263	570	131	197	3,875	753
1932	1,489	1,213	286	503	140	225	3,856	742
1933	1,746	849	345	555	124	186	3,805	1,018
1934	1,549	816	290	554	153	140	3,502	1,117
1935	1,576	922	198	577	136	153	3,562	1,132
1936	1,481	863	297	603	115	157	3,516	1,135
1937	1,554	1,073	243	617	129	194	3,810	..
1938 (preliminary)	1,837	1,293	375	680	136	151	4,472	...

(1) Not including China, Iran and Iraq. — (2) Not including U S. S. R.

This figure of world production in 1938, (which excludes the U. S. S. R., China, Iran and Iraq) is a record. It is more than 430 million bushels or 11 per cent. above the previous record of 4,040 millions in 1928.

World wheat trade in 1938-39.

The latest official statistics of world net exports of wheat refer to the first four months of the season from August 1 to November 30. Trade was fairly lively in the first quarter but fell off in November and was even a little below the level of November of last season. Nevertheless aggregate world exports of wheat in the first four months of 1938-39 show an increase of about 31 million bushels on the corresponding total of last season. The increase is particularly marked in the case of Canada, where there are large supplies from the 1938 crop. The United States exported approximately the same quantity as in the corresponding period of last year, while Argentina and Australia considerably increased their exports and thus succeeded in disposing of the greater part of their old crop stocks before the new harvest. The quantity marketed by the Danubian countries, in spite of the very large exportable surplus available in these countries, only shows, in this first part of the season, a slight increase on last year, but they will tend to develop as the season advances. Soviet exports, which were very heavy in the first three months, fell sharply in November and do not seem likely to recover in the next few months.

The average of exports for the first four months of the season—51 million bushels per month—is rather higher than we had forecast last October as the average for the 1938-39 season. We then forecast average monthly exports of 45 million bushels. It is possible that our October estimate may have

*World net exports of wheat (including flour in terms of wheat) *).*
(million bushels)

EXPORTS BY MONTHS				EXPORTS BY COUNTRIES			
Months	1938-39	1937-38	1936-37	Exporting Countries	Four months: August-November		
					1938-39	1937-38	1936-37
August	53	38	47	Canada 2)	64	41	104
September	47	38	52	United States 2). . .	26	27 5) +	(15)
October	56	48	52	Argentina	18	12	19
November	48	49	56	Australia	24	21	22
December . . . . .	...	44	53	Total four countries .	132	101	145
January . . . . .	...	48	63	Romania	17	19	20
February . . . . .	...	46	61	Hungary	13	4	12
March . . . . .	...	50	62	Other Europ. count. 3)	5	7	16
April . . . . .	...	44	47	North Africa	4	6	4
May . . . . .	...	40	42	India	2	7	6
June . . . . .	...	44	40	U. S. S. R.	28	27	1
July . . . . .	...	46	29	Other countries 4) .	3	2	3
Total August-November.	204	173	207	Total other countries .	72	72	62
Total Year	1) 540	535	604	General Total	204	173	207

*) Aggregate net exports of the normal exporting countries (possible net imports into certain of these countries are not deducted from the totals).

1) Forecast October 1938. — 2) Net exports adjusted in accordance with the monthly variations in stocks of Canadian wheat in the United States and stocks of United States wheat in Canada. — 3) Bulgaria, Lithuania, Poland and Yugoslavia. — 4) Iran, Iraq, Turkey, Chile, and Uruguay. — 5) Net imports.

to be raised slightly but we do not believe that it is opportune to do so yet, but we shall reconsider the figure next March, when the data are more complete.

The considerable increase in the net imports of European countries during the first quarter of the season from August to October continued during November and the aggregate of the first four months showed an increase of 29 million bushels on the corresponding period of last year. Of this increase 9 millions are ascribed to the United Kingdom and Ireland, 8 millions to Germany and the remainder is distributed more or less proportionately among the other importing countries of the continent; only Belgium and France show small relative decreases.

Imports of the Extra-European countries continued low and were hardly larger than last season.

Area and condition of wheat sowings for harvest in 1939.

The information hitherto received by the Institute on the wheat sowings for harvest in 1939 is still too vague and fragmentary to justify definite conclusions but it will serve to give some general indications of the likely changes in the wheat area.

*Net imports of wheat into Europe (including flour in terms of wheat) *).*
(million bushels).

IMPORTS BY MONTHS				IMPORTS BY COUNTRIES			
Months	1938-39	1937-38	1936-37	Importing Countries	Four months: August-November		
					1938-39	1937-38	1936-37
August	40	35	25	United Kingdom . .	73	65	66
September	37	29	29	Ireland	5	4	5
October	43	33	32	Total	78	69	71
November	40	34	33	Belgium	15	15	16
December . . . . .	...	33	36	Netherlands	11	8	6
January . . . . .	...	28	25	Germany and Austria	24	16	3
February . . . . .	...	32	37	France	4	5	2
March . . . . .	...	35	43	Switzerland	6	5	6
April . . . . .	...	33	39	Greece	5	4	7
May . . . . .	...	34	49	Italy	2	1	3
June . . . . .	...	37	49	Scand. & Baltic States 6)	8	6 4)	5
July . . . . .	...	40	41	Other countries 7) . .	7 2)	2	0.4
Total August-November	160 2)	131 4)	119	Total Continent . . .	82 2)	62 4)	48
Total Year	1) 415 3)	403 5)	438	Total Europe	160 2)	131 4)	119

*) Aggregate net imports of normal importing countries, after deduction of exports, if any.

1) Forecast October 1938. — 2) After deduction of net exports of 1 million bushels from Czecho-Slovakia. — 3) After deduction of net exports of 1 million bushels from Sweden. — 4) After deduction of net exports of 1 million bushels from Sweden and 0.4 million bushels from Czecho-Slovakia. — 5) After deduction of net exports of 9 million bushels from Czecho-Slovakia. — 6) Denmark, Estonia, Finland, Latvia, Norway and Sweden. — 7) Czecho-Slovakia, Spain, Portugal, Albania, Malta, etc.

In Europe the autumn was favourable in nearly all parts for winter sowings which were practically completed at the beginning of the new year. Despite the low prices ruling on the world market, the internal prices in both importing and exporting countries were sufficiently attractive to maintain and, in some cases, to increase the cultivated areas, all countries having taken steps to protect the purchasing power of the growers. Since both physical and economic factors tended in the same direction, an increase is probable in the European wheat acreage. This increase, however, should only be moderate.

After a mild autumn with rather plentiful moisture in the latter part, winter suddenly set in practically over the entire continent with severe cold accompanied and followed by heavy snowfalls, which in most cases afforded sufficient protection for the sowings. Where the snow cover was insufficient or where the soil had frozen before the coming of snow, the damage caused by the cold wave of the last decade of the year was substantial. This was especially the case in the north of France and in Belgium. However, on the whole, losses seemed neither widespread nor severe. In the first half of January temperatures rose and weather became mild and wet in all parts, causing a premature thaw and leaving the fields unprotected against a sudden return of wintry conditions.

Although the December frosts caused some local damage, they were helpful in clearing land of weeds and insects and, in some cases, in checking over-rapid growth of the wheat. At mid-January the crops in most regions were satisfactory, as at the same period last year.

Area sown to winter cereals, in thousand acres.

(The years indicated are those of the harvest)

COUNTRIES	WHEAT			RYE			BARLEY			OATS		
	1939	% 1939		1939	% 1939		1939	% 1939		1939	% 1939	
		1938 = 100	1933 to 1937 = 100		1938 = 100	1933 to 1937 = 100		1938 = 100	1933 to 1937 = 100		1938 = 100	1933 to 1937 = 100
France 1) . . .	12,249	99.2	95.8	1,604	98.9	96.0	503	106.0	112.3	2,274	101.8	107.8
Latvia	180	108.0	98.1	724	103.0	110.7	—	—	—	—	—	—
Lithuania . . .	361	101.6	93.0	1,278	98.6	104.1	—	—	—	—	—	—
Romania	8,386	100.6	112.2	939	85.2	97.4	175	90.5	87.8	—	—	—
Canada	799	98.0	119.5	596	102.4	96.6	—	—	—	—	—	—
United States . .	46,173	81.9	94.8	7,171	107.5	117.4	—	—	—	—	—	—
Tunisia	2,125	128.7	113.3	—	—	—	1,236	166.7	107.5	86	112.9	122.6

1) Sowings at January 1 1939.

In Russia, where the acreage seems to be similar to last year's, conditions resembled those in eastern Europe; there was severe cold with much snow in the second half of December and a return of milder weather in the first half of December. The crops began the winter in satisfactory condition and seem to have stood up well to the frosts of the end of the year. There was some fear, however, that the snow cover in some southern districts was too light to give adequate protection.

An estimate of the winter sowings in the United States, indicating a reduction of 18 per cent. on last year, was published last month. The Canadian winter wheat crops, of minor importance compared with spring wheat, show a decrease of 2 per cent. from 1938 and an increase of 20 per cent. on the average. The condition of the crop in the United States, which varied from one section to another but, on the whole, was rather mediocre early in January, improved somewhat in the first half of the month with the advent of rain but precipitation was uneven and insufficient in the areas most affected by the drought.

In India, an appreciable reduction in sowings is expected owing to prolonged drought which was relieved only locally, the general situation worsening appreciably. The prospects for the March-April crop are definitely not as good as those at the same period a year earlier.

Crops are generally satisfactory in the countries of the Near East.

In North Africa, where the season has been generally favourable for sowing, a rather considerable increase in sowings is in prospect. Tunisia expects an

increase of about 30 per cent. on last year. The crops in Tunisia, Algeria and Morocco benefited from good rains and are generally in satisfactory condition. Crops in Egypt grew regularly.

G. CAPONE.

Current information from various countries on wheat, rye, barley and oats.

Europe.

Germany: The Central Statistical Office has just published final figures of acreages in Germany in 1938 excluding Austria. On the whole, only minor revisions of the former estimates are made. The final figures are: wheat 5,037,000 acres against a first estimate of 4,983,000; rye, 10,533,000 acres against 10,479,000; barley 4,133,000 acres against 4,119,000; oats 6,666,000 acres against 6,696,000; spelt 138,000 acres against 151,000; meslin 1,460,000 acres against 1,453,000. Provisional figures are retained in the tables, as final figures for Austria are not yet available.

Belgium: Conditions were dry during the first half of December. There were heavy rains at the end of the month and temperatures were mild.

France: The first two decades of December were mild with sufficient rainfall. These conditions enabled all seasonal work to proceed well and stimulated growth even to an excessive extent in many cases. In the third decade there was a sudden, sharp drop in temperature, followed by snow. In the north, however, including the northern Paris basin, snow only fell after several days of severe frost. The thaw began on December 31 and continued in the first decade of January, with a slow, steady rise in temperature. Night frosts continued until the end of this period in most parts.

The growth of cereals, particularly wheat, had been exceptionally strong up to December 20, but the mild temperature had also encouraged the spread of weeds. The heavy frost of the last decade does not seem to have affected the wheat crops that were covered with snow, namely in the centre, west, east and south of France. In fact, the frost had the good effect of destroying many of the weeds and certain pests, such as field-mice and slugs. But in the Paris basin, the north and the northeast, the frost seriously damaged crops before they were covered. Wheat sown after alfalfa was particularly affected. Several agricultural experts have estimated that the loss in a number of districts amounts to two thirds or three quarters of the sowings. Official estimates of the damage have not yet been issued. Of minor cereals, rye seems to have resisted the frost well but oats were very seriously affected. It is officially estimated that in a number of cases, particularly in the whole of the north, crops have been entirely destroyed.

The area under meslin in 1939 is estimated at 162,100 acres against 162,300 acres in 1938 and an average of 168,800 acres in 1933 to 1937: percentages: 99.9 and 96.0.

Greece: In spite of rather dry weather in the first two decades of November the sowing of cereals continued throughout November. At the middle of December sowing was finished everywhere in rather favourable conditions. An increase in acreage sown of from 15 to 30 per cent. is forecast in the provinces of Serres, Tricalla, Messina and Corfu. Floods due to the heavy rain of December damaged cereal crops. The Agricultural Bank took urgent steps to repair the damage, which however does not seem very severe.

Hungary: In the four weeks December 14 1938 to January 11 1939, the weather was rather cold and precipitation, mainly in the form of snow, was above the aver-

Area and production of wheat.

COUNTRIES	†) AREA					†) PRODUCTION						
	1938 and 1935/39	1937 and 1937/38	Aver. 1932 to 1936 and 1932/ 1933 to 1936/ 1937	% 1938 and 1935/39	1938 and 1935/39	1938 and 1937/38	1937 and 1937/38	Average 1932 to 1936 and 1932/33 to 1936/37	1938 and 1935/39	1937 and 1937/38	Average 1932 to 1936 and 1932/33 to 1936/37	% 1938 and 1935/39
	1,000 acres					1,000 centals			1,000 bushels			
*Albania . . .	...	99	96	...	...	982	988	988	1,636	1,646	...	...
Germany 1) . .	5,641	5,522	6,005	102.2	94.0	128,836	107,156	115,214	214,723	178,590	192,020	120.2
Belgium . . .	429	425	392	100.9	109.5	10,678	9,330	9,535	17,796	15,550	15,891	114.4
Bulgaria . . .	3,449	3,234	3,003	106.7	114.9	47,392	38,946	30,174	78,986	64,909	50,289	121.7
Denmark . . .	324	319	279	101.4	116.1	10,141	8,113	7,359	16,902	13,521	12,265	125.0
*Spain . . .	...	11,165	...	...	...	...	...	94,652	...	157,750	...	...
Estonia . . .	172	168	152	102.4	113.2	1,883	1,672	1,481	3,139	2,786	2,469	112.6
Finland . . .	291	279	131	104.4	221.2	4,784	4,599	7,665	7,973	7,665	7,343	104.0
France . . .	12,502	12,591	13,281	...	...	207,235	154,705	188,876	345,385	257,837	314,785	134.0
Greece . . .	2,131	2,118	1,866	100.6	114.2	21,561	19,424	14,142	35,934	32,373	23,569	111.0
Hungary . . .	4,006	3,665	3,936	109.3	101.8	58,070	43,295	47,719	96,982	72,157	79,531	134.1
Ireland . . .	230	220	117	104.6	197.4	4,702	4,194	2,537	7,837	6,990	4,228	112.1
Italy . . .	12,426	12,782	12,421	97.2	100.0	178,394	177,772	157,906	297,317	296,280	263,171	100.4
Latvia . . .	348	339	316	102.9	110.2	4,231	3,781	3,823	7,052	6,302	6,372	111.9
Lithuania . . .	500	521	511	96.1	98.0	5,443	4,865	5,556	9,072	8,109	9,259	111.9
Luxembourg . .	57	46	38	123.5	148.3	1,065	724	597	1,775	1,206	996	147.2
Malta . . .	10	9	10	103.7	102.6	177	196	160	296	326	266	90.6
Norway . . .	86	79	47	109.1	183.2	1,568	1,498	801	2,614	2,497	1,334	104.7
Netherlands . .	321	318	351	100.9	91.3	9,083	7,569	9,395	15,138	12,615	15,657	120.0
Poland . . .	4,344	4,184	4,295	103.8	101.1	50,666	42,465	42,965	84,442	70,774	71,607	119.3
Portugal . . .	...	1,219	1,353	...	...	9,921	8,801	11,316	16,534	14,668	18,860	112.7
Romania . . .	9,435	8,777	7,876	107.5	119.8	108,027	82,896	57,159	180,401	138,157	95,263	130.3
Un. Kingdom: .	1,830	1,732	1,637	105.7	111.8	41,552	31,203	33,273	69,253	52,005	55,455	133.2
Engl. and W. .	92	100	85	92.3	109.4	2,330	2,509	2,146	3,883	4,181	3,577	92.9
Scotland . . .	6	4	7	126.9	81.1	128	99	162	213	164	269	129.7
N. Ireland . . .	759	734	704	103.4	107.8	18,111	15,432	14,816	30,184	25,720	24,693	117.4
Sweden . . .	177	174	156	101.5	113.1	3,657	3,710	3,029	6,096	6,184	5,048	98.6
Switzerland . .	2,218	2,108	2,276	105.3	97.5	39,425	30,760	35,327	65,708	51,266	58,877	128.2
Czecho-Sl. s) .	5,262	5,263	5,147	100.0	102.2	66,799	51,744	47,866	111,329	86,238	79,775	129.1
Yugoslavia . .	68,265	66,930	66,392	102.0	102.8	1,035,859	857,458	845,339	1,726,404	1,429,070	1,408,869	120.8
Total Eur. s) .	...	...	...	...	...	...	...	...	...	...	...	...
*U.S.S.R. 1) s) .	37,306	36,797	32,374	101.4	115.2	...	...	617,824	...	...	1,029,686	...
— 2) s) .	63,300	64,450	58,655	98.2	107.9	...	...	...	...	...	...	...
Canada . . .	25,930	25,570	25,376	101.4	102.2	210,006	109,446	180,235	350,010	182,410	300,391	191.9
United States 1) s)	49,711	46,978	34,411	105.8	144.5	411,982	411,494	274,976	686,637	635,824	458,294	149.8
States 2) s) .	20,510	17,444	15,743	117.6	130.3	146,498	113,911	95,597	244,164	189,852	159,329	128.6
*Mexico . . .	1,273	1,181	...	...	...	...	6,730	6,846	...	11,216	11,409	...
Total N. Am. .	96,151	89,992	75,530	106.8	127.3	768,486	634,851	550,808	1,280,811	1,058,086	918,014	121.0
*China . . .	...	42,617	49,891	...	...	...	381,875	494,270	...	636,446	823,767	...
Cyprus . . .	...	184	177	...	...	1,178	1,327	1,122	1,963	2,211	1,871	88.8
Chosen . . .	...	845	800	100.8	105.7	6,239	6,145	5,394	10,399	10,242	8,990	101.5
India . . .	35,635	33,215	34,128	107.3	104.4	241,472	218,445	209,664	402,453	364,075	349,440	110.5
*Iraq . . .	...	3,250	2,437	...	...	...	12,787	8,529	...	21,311	14,215	...
Japan . . .	1,777	1,752	1,532	101.4	116.0	27,147	30,247	25,766	45,244	50,410	42,943	89.8
Manchukuo . .	...	2,967	2,854	...	...	18,071	19,668	19,694	30,117	32,780	32,823	91.9
*Palestine . . .	...	558	489	...	...	...	2,809	1,592	...	4,682	2,654	...
Syria & Leb. .	1,412	1,373	1,262	102.8	111.9	14,015	10,336	8,859	23,358	17,227	14,765	135.6
*Transjordan .	...	8,323	7,973	...	...	96,257	79,793	60,128	...	4,152	2,142	...
Turkey . . .	51,143	48,653	48,726	105.1	104.9	404,379	365,961	330,627	160,424	132,985	100,212	120.6
Total Asia s) .	...	...	...	...	...	...	...	...	673,958	609,390	551,044	110.5
Algeria . . .	4,139	4,311	4,036	96.0	102.5	20,233	19,864	20,169	33,721	33,106	33,614	101.9
Egypt . . .	1,470	1,421	1,512	103.5	97.3	27,560	27,226	26,249	45,933	45,376	43,747	101.2
It. East Afr. .	...	49	17	...	...	...	216	98	...	360	163	...
*Eritrea . . .	...	67	57	45	117.9	516	371	306	...	619	509	138.8
Kenya g) . . .	156	102	55	152.3	284.1	...	380	181	...	633	301	...
*Libya . . .	2,906	3,027	3,150	96.0	92.3	12,886	12,537	15,448	21,476	20,895	25,746	102.8
F. Morocco . .	1,495	2,429	1,868	61.5	80.0	8,378	10,582	7,848	13,962	17,637	13,081	79.2
Tunisia . . .	10,077	11,245	10,611	89.6	95.0	69,573	70,580	70,020	115,951	117,633	116,697	98.6
Total N. Afr. .	...	...	...	...	...	...	...	...	...	...	...	...
Argentina . . .	20,868	19,220	17,996	108.6	116.0	189,598	110,882	139,002	315,991	184,799	231,665	171.0
*Chile . . .	2,047	1,890	1,906	108.3	107.4	...	18,237	18,572	...	30,394	30,953	...
Uruguay . . .	1,342	1,575	1,097	97.6	119.6	9,173	9,945	6,611	15,289	16,575	11,019	92.2
Un. S. Afr. g) .	2,084	1,751	1,804	119.0	115.5	10,452	6,094	9,309	17,420	10,157	15,514	171.5
Australia . . .	14,105	13,686	13,497	103.1	104.5	87,000	112,811	98,321	...	188,018	163,869	77.1
*N. Zealand . .	...	186	257	...	...	...	3,626	5,046	...	6,043	8,410	...
TOTALS s) . .	264,035	252,852	235,653	104.4	112.0	2,574,520	2,168,582	2,050,037	4,290,824	3,614,268	3,416,691	118.7
												125.6

See notes on page 10.

Area and production of rye.

COUNTRIES	†) AREA						†) PRODUCTION							
	1938 and 1938/39	1937 and 1937/38	Average 1932 to 1936 and 1932/33 to 1936/37	1938 and 1938/39		Aver. 1937 and 1937/38 = 100	1938 and 1938/39	1937 and 1937/38	Average 1932 to 1936 and 1932/33 to 1936/37	1938 and 1938/39	1937 and 1937/38	Average 1932 to 1936 and 1932/33 to 1936/37	1938 and 1938/39	
				% and 1938/39	1937 and 1937/38								% and 1938/39	1937 and 1937/38
1,000 acres						1,000 centals			1,000 bushels					
*Albania. . .		9	7	...	...		84	76		151	136	...	...
Germany 1). . .	11,421	11,161	12,074	102.3	94.6	199,601	161,912	187,538	356,431	289,130	334,889	123.3	106.4	
Belgium. . .	383	376	446	101.9	85.7	8,645	7,606	9,889	15,438	13,583	17,659	113.7	87.4	
Bulgaria. . .	465	521	495	89.1	93.9	4,145	5,257	4,604	7,402	9,387	8,221	78.9	90.0	
Denmark. . .	358	344	349	104.2	102.6	6,393	5,538	5,427	11,417	9,889	9,691	115.4	117.8	
*Spain. . .	...	...	1,457	...	...	...	...	11,809	...	...	21,087	...	...
Estonia. . .	365	368	359	99.2	101.7	4,146	4,663	4,229	7,403	8,327	7,552	88.9	98.0	
Finland. . .	607	597	579	101.7	104.8	8,223	9,510	7,737	14,684	16,982	13,816	86.5	106.3	
France. . .	1,640	1,639	1,687	100.1	97.2	17,732	16,307	17,889	31,665	29,119	31,944	108.7	99.1	
Greece. . .	178	176	175	101.4	101.6	1,371	1,444	1,253	2,448	2,579	2,238	94.9	109.4	
Hungary. . .	1,555	1,499	1,592	103.7	97.7	17,218	13,622	16,699	30,747	24,325	29,820	126.4	103.1	
Ireland. . .	2	2	3	96.8	70.7	29	31	43	52	55	77	94.0	67.5	
Italy. . .	257	259	276	99.2	93.2	3,045	3,193	3,370	5,437	5,701	6,018	95.4	90.3	
Latvia. . .	709	713	640	99.5	110.8	8,349	9,291	7,568	14,909	16,592	13,514	89.9	110.3	
Lithuania. . .	1,305	1,259	1,223	103.7	106.7	13,803	13,381	13,120	24,647	23,894	23,428	103.2	105.2	
Luxemburg. . .	18	16	20	114.8	91.3	287	219	282	513	392	504	130.9	101.8	
Norway. . .	13	15	15	91.0	87.1	243	248	253	433	443	453	97.8	95.7	
Netherlands. . .	585	563	471	104.0	124.4	11,905	10,660	9,679	21,259	19,036	17,285	111.7	123.0	
Poland. . .	14,571	14,138	14,190	103.1	102.7	152,561	124,293	143,869	272,431	221,953	256,909	122.7	106.0	
*Portugal. . .	...	348	369	...	...	...	2,228	2,404	3,978	4,293	...	...	...
Romania. . .	1,192	1,083	946	110.1	126.0	14,903	9,950	7,498	26,613	17,769	13,389	149.8	198.8	
Un.Kingdom: Engl. and Wales. . .	16	12	15	135.4	108.3	240	157	212	428	280	378	152.9	113.1	
Sweden. . .	498	524	551	95.0	90.3	8,922	9,100	9,671	15,933	16,250	17,269	98.0	92.3	
Switzerland. . .	38	37	40	100.5	92.8	717	726	737	1,281	1,296	1,316	98.8	97.3	
Czecho-Slo- vakia. . .	2,510	2,413	2,535	104.0	99.0	37,038	32,730	39,064	66,139	58,447	69,757	113.2	94.8	
Yugoslavia. . .	523	628	619	83.2	84.4	4,404	4,616	4,636	7,864	8,243	8,279	95.4	95.0	
Total Europe. . .	39,209	38,343	39,300	102.3	99.8	523,920	444,454	495,267	935,574	793,672	884,406	117.9	105.8	
*U. S. S. R. (s) 5) 50,284 (s) 56,486 6) 59,002 89.0 85.2	...	...	923	...	...	...	...	7) 477,119 7) 6,246	...	...	7) 852,001 7) 11,154	...	...
Canada. . .	741	894	677	83.0	109.5	6,153	3,232	3,499	10,988	5,771	6,248	190.4	175.9	
United States. . .	3,979	3,846	2,944	103.5	135.2	30,822	27,905	18,125	55,039	49,830	32,366	110.5	170.1	
Total N. Am. . .	4,720	4,740	3,621	99.6	130.4	36,975	31,137	21,624	66,027	55,601	38,614	118.7	171.0	
Turkey. . .	...	875	688	...	...	11,910	9,897	6,045	21,267	17,674	10,795	120.3	197.0
Algeria. . .	5	3	3	155.0	159.1	25	21	16	44	37	29	119.4	150.9	
*French Morocco. . .	...	9	4	...	...	...	16	14	...	28	25	...	...
Argentina. . .	10) 2,254 10) 2,184 10) 1,896	103.2	118.9	6,504	1,973	5,373	11,614	3,523	9,594	329.6	121.0	...	...
*U. of S. Afr. 9) . . .	...	...	6) 121	...	...	...	406 7) 492	...	7) 725	878	...	...	...
TOTALS. . .	47,063	46,145	45,508	102.0	103.4	579,334	487,482	528,325	1,034,526	870,507	943,438	118.8	109.7	

See notes on page 10.

Area and production of meslin.

COUNTRIES	†) AREA					‡) PRODUCTION							
	1938	1937	Average 1932 to 1936	% 1938		1938	1937	Average 1932 to 1936	1938	1937	Average 1932 to 1936	% 1938	
				1937	Aver.							1937	Aver.
= 100 = 100										= 100 = 100			
1,000 acres					1,000 centals			1,000 bushels					
Germany 1)	1,471	1,499	1,094	98.1	134.5	27,789	25,678	17,588	47,913	44,274	30,325	108.2	158.0
Belgium . . .	5	6	6	73.8	76.2	..	118	97	..	204	167	...	...
Bulgaria . . .	258	404	214	63.9	120.3	2,945	4,756	2,266	5,078	8,199	3,907	61.9	130.0
Denmark . . .	746	764	814	97.7	91.6	17,637	16,619	17,137	30,409	28,653	29,546	106.1	102.9
Spain . . .	...	...	7)	109	...	...	...	7)	623	...	7)	1,075	...
Estonia . . .	209	199	192	105.1	108.8	2,460	1,991	1,814	4,242	3,433	3,129	123.6	135.6
Finland . . .	21	21	37	99.3	57.4	309	319	535	532	550	923	96.8	57.7
France . . .	198	180	187	109.9	105.8	2,422	1,938	2,162	4,176	3,342	3,727	124.9	112.0
Greece . . .	156	162	135	96.5	115.7	1,134	996	802	1,956	1,717	1,382	113.9	141.5
Latvia . . .	195	192	175	101.8	111.2	2,657	2,534	2,034	4,581	4,368	3,507	104.9	130.7
Lithuania . .	277	278	249	99.7	111.3	3,268	3,086	2,632	5,634	5,321	4,537	105.9	124.2
Luxemburg . .	4	4	8	98.9	53.6	70	61	108	121	104	186	115.7	64.7
Norway . . .	11	11	13	100.0	88.5	214	212	227	369	366	392	100.8	94.2
Poland . . .	326	347 11)	332	93.7	98.1	...	3,653 11)	3,500	...	6,299 11)	6,034	...	...
Un. Kingdom:													
Engl. and W.	92	92	101	100.5	91.3	1,658	1,680	1,792	2,858	2,897	3,090	98.7	92.5
Sweden . . .	630	626	602	100.6	104.7	14,337	12,224	11,568	24,719	21,077	19,944	117.3	123.9
Switzerland .	18	18	16	100.7	111.7	381	384	323	658	661	557	99.4	118.0
Czecho-Slov. .	13	15	17	91.7	80.3	212	191	240	366	329	413	111.2	88.6
Yugoslavia . .	167	169	141	99.2	118.5	1,334	1,272	1,118	2,300	2,194	1,927	104.8	119.3
Canada . . .	1,159	1,128	1,167	102.8	99.4	17,760	16,258	16,483	39,466	36,129	36,629	109.2	107.7
Turkey . . .	...	283 7)	200	...	...	2,551	2,503 7)	1,477	4,399	4,316 7)	2,547	101.9	172.7

NOTES FOR TABLES OF WHEAT, RYE AND MESLIN.

†) The years indicated are those of the harvest, single years referring to the Northern Hemisphere, double years to the Southern. — *) Countries not included in the totals. — §) In calculating the totals account has been taken of the probable area cultivated in some countries for which estimates of production are available but not those of area. — w) Winter crop. — s) Spring crop. — 1) Including Austria. — 2) Estimated on May 1. — 3) Provisional estimate. — 4) Including spelt. — 5) Area provided for in the Plan. — 6) Average of three years. — 7) Average of four years. — 8) Including Tigris. — 9) Cultivation by Europeans only. — 10) Area sown. — 11) Average of two years.

age. During the severe frosts of December 17 (10° to 14° F) and December 18 (3° to 8° F) fields were covered only by a thin layer of snow. Winter cereal sowings began the winter in satisfactory condition.

Ireland: The first half of December was almost continuously wet but mild. There was a spell of severe frost and snow from December 17 to 24 but subsequently it was mild again. Sowing was not practicable, but October-sown cereals germinated satisfactorily. The cold spell did not seriously affect crops.

Italy: The first half of December was exceptionally mild, but the second half was intensely cold. The cold spell had the good effect of checking the growth of winter cereals which in some parts of Italy were too forward. At the end of the month the sowing of winter wheat was still in progress in some areas but was nearing completion.

Latvia: During the first half of December weather was mild, the cold beginning in the second half. These were rains during the first half and at Christmas there

Area and production of barley.

COUNTRIES	†) AREA						†) PRODUCTION								
	1938 and 1939	1937 and 1938	Average to 1936 and 1932 to 1933 to 1936/ 1937	% 1938 and 1938/39		Average 1937/ 1938 =100	1938 and 1939	1937 and 1938	Average 1932 to 1936 and 1932/33 to 1936/37	1938 and 1939	1937 and 1938	Average 1932 to 1936 and 1932/33 to 1936/37	% 1938 and 1938/39		
				1937 and 1938 =100	Aver. =100								1937 and 1938 =100	Aver. =100	
1,000 acres						1,000 centals				1,000 bushels					
*Albania . . .		14	13			128	137			267	286
Germany ^{a)} . . .	4,542	4,632	4,378	98.1	103.7	98,818	85,707	79,911	205,875	178,560	166,484	115.3	123.7		
Belgium . . .	74	85	86	86.8	86.0	1,774	1,886	2,120	3,696	3,929	4,418	94.1	83.7		
Bulgaria . . .	557	540	555	103.2	100.3	7,802	7,223	6,344	16,255	15,153	13,216	107.3	123.0		
Denmark . . .	981	911	864	107.7	113.5	29,983	24,238	21,734	62,466	50,496	45,279	123.7	138.0		
*Spain . . .			4,660					51,612			107,527				
Estonia . . .	217	220	257	98.4	84.2	2,133	1,784	2,095	4,443	3,717	4,364	119.5	101.8		
Finland . . .	301	299	318	100.6	94.7	4,387	3,879	4,044	9,140	8,082	8,426	113.1	108.5		
France . . .	1,890	1,860	1,790	101.6	105.6	28,055	22,413	23,349	58,448	46,694	48,644	125.2	120.2		
Greece ^{x)} . . .	543	566	527	95.9	102.9	5,598	4,963	4,260	11,664	10,341	8,875	112.8	131.4		
Hungary . . .	1,127	1,155	1,151	97.6	97.9	14,708	12,278	14,636	30,643	25,580	30,492	119.8	100.5		
Ireland . . .	118	131	126	90.2	93.2	2,448	2,638	2,911	5,101	5,489	6,065	92.9	84.1		
Italy . . .	492	483	499	101.9	98.6	5,462	5,144	4,731	11,380	10,716	9,856	106.2	115.5		
Latvia . . .	440	448	461	98.1	95.4	4,863	4,815	4,299	10,131	10,032	8,957	101.0	113.1		
Lithuania . . .	536	529	510	101.4	105.2	5,927	6,040	5,332	12,348	12,584	11,108	98.1	111.2		
Luxemburg . . .	5	5	7	99.7	71.9	71	60	87	148	124	181	119.6	82.0		
Malta ²⁾ . . .	5	5	5	99.9	96.3	102	114	102	213	238	213	89.6	99.9		
Norway . . .	148	149	146	99.3	101.5	2,746	2,843	2,523	5,721	5,933	5,256	96.4	108.9		
Netherlands . . .	116	121	86	95.4	134.7	3,219	2,978	1,939	6,706	6,204	4,040	108.1	166.0		
Poland . . .	2,910	3,046	2,950	95.5	98.6	31,657	30,058	31,566	65,953	62,622	65,764	105.3	100.3		
*Portugal . . .		180	176	...	...		875	901		1,822	1,877		
Romania . . .	3,126	3,739	4,258	83.6	73.4	24,222	20,221	29,800	50,464	42,129	62,084	119.8	81.3		
Un. Kingdom:															
Engl. & W.	885	823	837	107.6	105.8	17,987	12,902	15,429	37,473	26,880	32,144	139.4	116.6		
Scotland . . .	99	81	75	122.4	132.4	2,195	1,770	1,590	4,573	3,687	3,313	124.1	138.0		
N. Ireland . . .	3	3	2	123.7	156.8	74	5	50	153	117	104	131.4	147.6		
Sweden . . .	272	255	260	106.8	104.9	5,876	4,553	4,671	12,241	9,490	9,731	129.0	125.8		
Switzerland . . .	11	11	14	100.9	78.1	192	186	188	400	387	393	103.3	101.8		
Czecho-Slov. ^{x)}	1,631	1,661	1,644	98.2	99.2	28,616	24,883	26,324	59,617	51,214	54,842	116.4	108.7		
Yugoslavia . . .	1,026	1,030	1,040	99.6	98.6	9,287	8,446	9,096	19,349	17,596	18,950	110.0	102.1		
Total Europe . . .	22,055	22,788	22,846	96.8	96.5	338,202	291,831	299,131	704,601	607,994	623,199	115.9	113.1		
*U.S.S.R. ^(w) . . .	3) 1,646	3) 1,506	4) 1,154	109.3	142.7	...	...	5) 7,485	...	...	5) 15,595	...	...
Canada . . .	3) 18,969	3) 20,068	18,730	94.5	101.3	...	...	5) 146,139	...	...	5) 304,463	...	...
United States . . .	4,454	4,331	3,870	102.8	115.1	49,076	39,900	34,922	102,242	83,124	72,754	123.0	140.5		
Total N. Am. . .	10,513	9,968	10,032	105.3	104.8	121,027	105,753	96,193	252,139	220,327	200,402	114.4	125.8		
	14,967	14,299	13,902	104.7	107.7	170,103	145,652	131,115	354,381	303,451	273,156	116.8	129.7		
*China . . .		14,721	16,155	...	...		140,466	174,466		292,642	363,478	...	...
Cyprus . . .		108	110	...	...	900	962	838	1,875	2,014	1,746	93.1	107.4
Chosen . . .	2,737	2,685	2,522	102.0	108.5	24,528	31,964	22,883	51,100	66,592	47,673	76.7	107.2		
*Iraq . . .		2,000	1,452	...	...		12,566	7,868		26,180	16,391	...	...
Japan . . .	1,892	1,811	1,942	104.5	97.4	30,807	34,727	35,424	64,182	72,349	73,802	88.7	87.0		
*Palestine . . .		553	544	...	...		1,663	1,114		3,464	2,320	...	...
Syria & Leb. . .	838	795	742	105.4	112.9	8,493	5,872	6,306	17,693	12,233	13,137	144.6	134.7		
*Transjord. . .				...	...		1,168	505		2,434	1,052	...	...
Turkey . . .		4,408	3,906	...	...	56,983	50,194	35,072	118,716	104,572	73,068	113.5	162.5
Total Asia . . .	9,983	9,807	9,222	101.8	108.3	121,711	123,724	100,523	253,566	257,760	209,426	98.4	121.1		
Algeria . . .	2,879	3,093	3,229	93.1	89.2	12,786	11,118	16,718	26,637	27,329	34,830	97.5	76.5		
Egypt . . .	274	271	303	101.1	90.3	5,130	5,075	4,956	10,687	10,574	10,324	101.1	103.5		
It. East Afr.:															
*Eritrea . . .		6) 104	62	...	...		6) 419	330		6) 873	687	...	...
*Libya . . .		367	367	121.0	100.1		850	981		1,771	2,044	...	...
F. Morocco . . .	4,240	4,796	3,860	88.4	109.9	22,101	18,212	26,236	46,045	37,943	54,660	121.4	84.2		
Tunisia . . .	741	1,532	1,144	48.4	64.8	2,866	4,409	4,564	5,971	9,186	9,508	65.0	62.8		
Total Africa . . .	8,134	9,692	8,536	83.9	95.3	42,883	40,874	52,474	89,340	85,032	109,322	105.1	81.7		
Argent. ^(x) . . .	(2,053)	(1,942)	(1,843)	105.7	111.4	10,582	11,321	14,583	22,047	23,585	30,381	93.5	72.6		
*Chile . . .		1,131	1,362	...	...		3,611	2,530		7,523	5,271	...	...
*Uruguay . . .		206	243	...	...		248	144		517	300	...	...
		31	22	...	...								
*Un. of S. Afr. ^{y)} . . .			9) 73	...	...		559	652		1,156	1,357	...	...
*N. Zealand . . .		25	19	...	...		542	327		1,131	681	...	...
TOTALS ^{§)} . . .	57,192	58,528	56,349	97.7	101.5	683,481	613,347	597,826	1,423,935	1,277,822	1,245,484	111.4	114.3		

Area and production of oats.

COUNTRIES	†) AREA					†) PRODUCTION									
	1938 and 1939	1937 and 1938	Average 1932 to 1936 and 1937	1938 and 1939		1938 and 1939	1937 and 1938	Average 1932 to 1936 and 1937	1938 and 1939	1937 and 1938	Average 1932 to 1936 and 1937	1938 and 1939			
				%	Aver.							%	Aver.		
														1937 and 1938 =100	1938 and 1939 =100
1,000 acres					1,000 centals					1,000 bushels					
* Albania . . .	...	29	24	...	...	246	226	...	768	705	...	...	...
Germany a) . .	7,403	7,728	8,245	95.8	89.8	147,911	139,598	142,139	462,218	436,242	444,180	106.0	104.1		
Belgium . . .	522	521	609	100.1	85.7	11,980	11,468	16,420	37,437	35,839	51,312	104.5	73.0		
Bulgaria . . .	333	369	300	95.6	117.8	1,953	3,230	2,352	6,103	10,094	7,351	60.5	83.0		
Denmark . . .	924	930	943	99.4	98.1	25,353	22,595	21,682	79,228	70,610	67,757	112.2	116.9		
* Spain . . .	...	...	1,791	...	...	...	...	14,544	...	...	45,449	...	...
Estonia . . .	368	358	345	102.8	106.7	3,891	3,067	2,885	12,160	9,585	9,016	126.9	134.9		
Finland . . .	1,144	1,125	1,140	101.7	100.3	18,012	15,973	14,915	56,287	49,915	46,610	112.8	120.8		
France . . .	8,101	8,039	8,226	100.8	98.5	120,135	95,826	103,821	375,418	299,455	324,439	125.4	115.7		
Greece . . .	383	415	334	92.4	114.6	3,484	3,122	2,323	10,886	9,755	7,258	111.6	150.0		
Hungary . . .	557	570	546	97.9	102.0	6,139	5,961	6,352	19,185	18,629	19,850	103.0	96.7		
Ireland . . .	570	573	605	99.5	94.3	12,394	12,841	13,193	38,731	40,128	41,229	96.5	93.9		
Italy . . .	1,107	1,076	1,078	102.9	102.7	13,870	13,663	11,748	43,345	42,696	36,712	101.5	118.1		
Latvia . . .	860	829	792	103.7	108.5	9,846	8,929	7,551	30,769	27,903	23,597	110.3	130.4		
Lithuania . . .	877	861	866	101.9	101.3	9,365	8,549	7,970	29,266	26,715	24,905	109.5	117.5		
Luxemburg . .	62	64	67	96.4	92.6	992	861	995	3,100	2,692	3,109	115.2	99.7		
Norway . . .	211	211	226	99.7	95.2	4,007	4,155	3,982	12,521	12,985	12,444	96.4	100.6		
Netherlands . .	361	363	332	99.6	108.9	8,091	8,294	6,470	25,284	25,918	20,217	97.6	125.1		
Poland . . .	5,623	5,669	5,499	99.2	102.3	57,231	51,652	56,714	178,847	161,411	177,231	110.8	100.9		
* Portugal . . .	...	...	645	...	...	...	2,216	1,926	...	6,925	6,020	...	...
Romania . . .	1,573	1,939	2,001	81.1	78.6	12,397	11,305	15,226	38,739	35,328	47,581	109.7	81.4		
United Kingdom . .	...	...	...	...	...	...	...	...	...	...	...	...	...
Engl. and Wales . .	1,301	1,223	1,463	106.3	88.9	23,946	21,011	26,033	74,830	65,660	81,354	114.0	92.0		
Scotland . . .	798	819	839	97.4	95.1	14,179	14,918	15,268	44,310	46,620	47,712	95.0	92.9		
N. Ireland . . .	296	257	278	115.4	106.6	6,489	5,438	6,025	20,279	16,993	18,827	119.3	107.7		
Sweden . . .	1,647	1,640	1,644	100.5	100.2	30,441	27,895	26,547	95,127	87,172	82,959	109.1	114.7		
Switzerland . . .	28	27	31	102.6	89.2	541	529	514	1,692	1,653	1,607	102.3	105.3		
Czechoslovakia . .	1,902	1,925	1,959	98.8	97.1	27,999	30,255	29,390	87,496	94,547	91,842	92.5	95.3		
Yugoslavia . . .	894	854	893	104.6	100.1	7,199	6,514	6,987	22,496	20,356	21,834	110.5	103.0		
Total Europe . . .	37,865	38,385	39,261	98.7	96.5	577,845	527,649	547,502	1,805,754	1,648,901	1,710,933	109.5	105.5		
* U. S. S. R. . .	41,196	43,193	42,528	95.4	96.9	...	...	351,758	...	...	1,099,236	...	...
Canada . . .	13,010	13,048	13,558	99.7	96.0	126,270	91,270	114,667	394,593	285,220	358,336	138.3	110.1		
United States . .	35,477	35,256	36,178	100.6	98.1	337,228	371,716	288,437	1,053,839	1,161,612	901,367	90.7	116.9		
Total N. Am. . .	48,487	48,304	49,736	100.4	97.5	463,498	462,986	403,104	1,448,432	1,446,832	1,259,703	100.1	115.0		
* China . . .	...	2,428	2,529	...	...	...	18,794	19,356	...	58,732	60,488	...	...
Cyprus . . .	...	12	11	...	...	66	79	63	206	246	198	83.9	104.1
Syria & Leb. . .	24	27	31	91.6	79.6	219	234	280	686	730	876	93.9	78.3		
Turkey . . .	...	554	483	...	...	7,441	4,939	4,145	23,254	15,436	12,952	150.6	179.5
Algeria . . .	506	477	459	106.0	110.2	3,478	3,061	3,179	10,868	9,565	9,935	113.6	109.4		
Fr. Morocco . .	109	105	70	103.7	154.6	1,058	870	476	3,307	2,718	1,487	121.6	222.4		
Tunisia . . .	77	91	63	83.8	122.3	661	628	379	2,067	1,963	1,185	105.3	174.4		
Total N. Afr. . .	692	673	592	102.9	117.2	5,197	4,559	4,034	16,242	14,246	12,607	114.0	128.8		
Argentina (1) . .	(3,361)	(3,254)	(3,391)	103.3	99.1	16,535	15,190	17,883	51,671	47,468	55,885	108.9	92.5		
* Chile . . .	338	298	225	113.4	150.2	...	2,712	2,092	...	8,474	6,538	...	...
Uruguay . . .	262	221	187	118.4	139.8	1,728	1,065	770	5,401	3,328	2,405	162.3	224.6		
* Un. of S. Afr. 8)	...	...	521	...	...	...	1,870	2,242	...	5,845	7,007	...	...
* New Zealand . .	...	58	80	...	...	...	1,056	1,367	...	3,301	4,273	...	...
TOTALS §) . . .	91,257	91,430	93,692	99.8	97.4	1,072,259	1,016,701	977,781	3,351,646	3,177,187	3,055,559	105.5	109.7		

†) The years indicated are those of the harvest, single years referring to the Northern Hemisphere, double years to the Southern. — *) Countries not included in the totals. — §) In calculating the totals account has been taken of the probable area cultivated in some countries for which estimates of production are available but not those of area. — w) Winter crop. — s) Spring crop. — a) Including Austria. — x) Area sown. — z) Barley and meslin. — 3) Area provided for in the Plan. — 4) Average 1934 to 1936. — 5) Average 1932 to 1935. — 6) Including Tigris. — 7) Area harvested. — 8) Cultivation by Europeans only. — 9) Average 1933/34 to 1936/37.

was snow which gave the fields a thin cover. The condition of winter wheat at the beginning of January was average according to 32.1 per cent. of the crop reports, above average according to 65.6 per cent. and below average according to 2.3 per cent. Corresponding figures for rye were 23.1 per cent., 75.4 per cent. and 1.5 per cent.

Lithuania: During the first half of December, weather was mild with some precipitation. At the beginning of the second half of the month frost set in and continued to the end. The temperature fell to 2° F below zero. The snow fell on frozen soil, a favourable factor for the wintering of the crops.

Poland: According to the Central Statistical Office of Poland, the long, warm and moist autumn was favourable both for the growth of winter cereals and for preparation work for the spring sowings. The winter cereals began the winter well developed and well rooted. The crop condition of winter cereals, compiled from the reports of 3,750 crop reporters, was as follows:—

	15-XII 1938	15-XI	15-XII 1937
Wheat	3.4	3.4	3.6
Rye	3.6	3.5	3.8
Barley	3.4	—	3.5

The figures show that condition on December 15 was practically what it was on November 15 but slightly better than it was on December 15 1937. The severe frost of the first half of December, however, may have done rather considerable damage to the plants which are well grown but without snow cover.

Romania: On January 13 the condition of winter cereals was good. The snow cover was adequate throughout the country at that date. The situation was also good on January 20, although rain and a warm spell had melted the snow in almost all parts. Snow is required for protection of the young plants.

United Kingdom: In the first half of December the mild weather of November continued, with gales in the west and north of England and in Scotland. The second half was very cold with heavy falls of snow. Mild conditions returned towards the end of the month. Conditions were not favourable for cultivation or sowing, but work is still fairly well in hand except in the north and parts of Wales. Germination has been good and plants are generally strong and healthy. January, particularly the third week, was exceptionally wet.

Yugoslavia: According to the most recent estimate, the area cultivated to spelt in 1938 was about 41,100 acres against 37,400 in 1937 and 41,700 on the average of the five years ending 1936; percentages, 109.9 and 98.5. The corresponding production is estimated at about 248,600 centals against 255,100 and 285,000; percentages, 97.5 and 87.2.

U. S. S. R.: About the middle of December, following mild weather, there was a sudden drop in temperature of 25° to 35° F. to a level about 10° to 15° F. below the long-term average in the west of the European Territory and about 25° F. in the eastern part of the Territory. On December 16 the wave of cold had spread all over the south. The lowest temperatures recorded were 4° below zero F. in eastern Ukraine, 9° to 14° above zero F. in North Caucasus, 7° to 18° above zero F. in the Crimea, 13° to 18° below zero F. in the Volga region and as low as 41° below zero F. in the northeast. In the centre these temperatures were maintained for 5 to 7 days and in the south and west for 4 to 5 days. The current of cold air coming from the North meeting the warm moist air caused precipitation. In the

centre, however, the snow cover was so light as not to be continuous, whereas in North Caucasus there was deep snow. In the second decade the snow covered the fields in the greater part of the country, but in many areas the depth was slight and variable, while in the southeast there were fields completely uncovered. In many areas of the centre the sudden, sharp drop in temperature found the fields little covered by snow. The ground is frozen to a considerable depth in the south of the Union the snow fell on frozen ground. In the third decade of December the temperature remained constantly low. There was frequent precipitation, but there were still parts of the southeast without a snow cover. In the Asiatic Territory it was very cold and there was a heavy snowfall.

No information on crop condition is available except for Ukraina. On December 15, at the moment when growth was checked the condition of winter wheat and rye varied on the whole from good to excellent.

America.

Argentina: The weather of December was favourable on the whole for the threshing of wheat and for the growth of the late crops which were in fair conditions at the beginning of January.

United States: The total wheat harvest of 1938, at 558,481,000 centals (930,801,000 bushels), was 6.3 per cent. larger than the 1937 crop, 50.7 per cent. above the average outturn of the five years 1932 to 1936 and the third largest of the post-war crops.

The cereal yields obtained in 1938 are shown below with comparisons.

	1938	1937	Average 1927-36	1938	1937	Average 1927-36
	centals	per harvested acre		bushels	per harvested acre	
All wheat	8.0	8.2	8.1	13.3	13.6	13.5
Winter wheat	8.3	8.8	8.7	13.8	14.6	14.5
Spring wheat	7.1	6.5	6.7	11.9	10.9	11.1
Rye	7.7	7.3	6.3	13.8	13.0	11.3
Barley	11.5	10.6	10.1	24.0	22.1	21.0
Oats	9.5	10.5	8.7	29.7	32.9	27.1

The harvested area of buckwheat in 1938 was estimated to have been 453,000 acres compared with 426,000 acres in 1937 and with an average of 454,000 acres in the years 1932 to 1936; percentages, 106.3 and 99.7. The production was estimated at 3,341,000 centals (6,682,000 bushels) against 3,382,000 centals (6,764,000 bushels) in 1937 and an average of 3,821,000 centals (7,643,000 bushels); percentages, 98.8 and 87.4. The area sown to winter wheat in the autumn of 1938 (46,173,000 acres) is in sharp contrast with the very heavy autumn seedings of 1936 and 1937 and indicates a tendency to return to an acreage about equal to average. This is undoubtedly associated with lower wheat prices received for the 1938 crop and with the Agricultural Adjustment Administration quotas for the 1939 crop. In Indiana, Illinois and parts of adjoining States the dry fall interfered with seedings and the acreage is below average. Seedings are, however, somewhat above average in Kansas, Nebraska and South Dakota where recent summer droughts have caused a shift from maize to winter wheat; also from Colorado into Montana where wheat gave an unusually good

yield in 1938. Acreage also exceeds average in a less important producing area extending from Kentucky and North Carolina southward.

The condition of winter wheat on December 1 was 72 per cent. of the normal compared with 76 per cent. a year-earlier. Conditions were generally poorest in the Great Plains area from Nebraska southward. In this area early moisture conditions were more favourable than in recent years, resulting in somewhat better subsoil conditions. With subsequent dry weather, however, surface moisture was becoming exhausted by December 1. In parts of the Central Plains area much late seeded wheat had not yet germinated. Soft winter wheat in the Atlantic States and in some East North Central States showed a better condition than in 1937, particularly in Illinois, Missouri and Iowa. In the Pacific Northwest and in California the condition of winter wheat was close to average. It is expected that abandonment of sown acreage will be above average and will probable be between 20 and 25 per cent. The acreage of rye sown for all purposes in the autumn of 1938 (including an allowance for spring sown rye) is 7,171,000 acres which is an increase on last year and on the average. Increases in sown acreage were quite general throughout the country. The only important rye producing State to show a decrease from last year was Wisconsin.

The condition of rye on December 1 was 76 per cent. of the normal compared with 74 per cent. on December 1, 1937. Condition was better in most of the Northern Great Plains area and east of the Rockies. This was partially offset by lower condition in much of the eastern Maize Belt and in the Pacific Coast States.

During the following weeks conditions were favourable on the whole east of the Mississippi but generally unfavourable in the west.

Early in January there were alternations of freezing and thawing and the crops were adversely affected where there was no snow cover. East of the Mississippi favourable conditions continued. From the Mississippi to the Rockies there was no material change except in the western belt where there was an increasing need of moisture. Conditions on the Pacific Coast were favourable.

In the second week of January many sections of the winter wheat belt received moisture which was especially helpful in the southwest but in parts precipitation was too light to bring material benefit. Good rains fell in southern Kansas but in the rest of the State there was further deterioration. Partial good rains fell in the northwest. Elsewhere rainfall was insignificant and there was some deterioration on late-sown and poorly prepared land. Conditions were still favourable on the Pacific Coast.

Uruguay: Harvesting was proceeding early in January in good conditions but late frosts and hail caused some damage. The first estimate of the 1938-39 crop shows a decrease of about 8 per cent. from last year but an increase of 38.8 per cent. on the five-year average.

Asia.

India: In the Punjab in the four weeks ending January 9 the weather was dry save for light rain in the week ending December 26. More rain was needed. Crop condition remained average in irrigated areas and below average in unirrigated areas. In the Central Provinces dry weather was also experienced and showers were needed. Wheat had suffered in Jubbulpore.

Palestine: It is reported that the 1938 wheat crop was of very poor quality owing to a widespread attack of rust. Figures for the area sown this year to cereals are not yet available. Rainfall in December was sufficient but not proportionately

distributed; towards the end of the month the need for more rain was starting to be felt. Night temperatures during the second fortnight of December were low as compared with previous years. Sowing was rather on the late side. Germination was reported to be normal and the crop condition generally good.

Africa.

Algeria: December was generally wet and cold, particularly at the end of the month. The temperature was below freezing on high ground. Snow and hail fell. Sowing was interrupted by the bad weather but was fairly well in hand on European farms, except in certain parts of Oran. It was however behind on native farms. Germination took place normally on early sown lots and tillering proceeded in good conditions. As a result of the rain weeds have spread. On the whole, condition of crops at the beginning of January was considered satisfactory.

Egypt: Late sowing of wheat was effected by the middle of December in Lower Egypt and by its last days, in Upper Egypt. Sowing is considered about 7 days later in Lower Egypt and 10 days later in Upper Egypt than last year, owing to the delay in picking cotton and pulling up stalks. Manuring and watering of the crop were done before the advent of the drought period which commenced in the last days of the month. Growth was satisfactory owing to the favourable weather conditions. Sowing of barley was over at the end of the third week of December and was about one week later than last year. Watering was general before the winter closure of canals, and manuring of certain fields was also completed. Growth is satisfactory.

Union of South Africa: The weather during November was very favourable with plenty of rain in the Southwest and South Coast areas of Cape Province. Harvesting of wheat was in progress and yields were excellent in the Southwest. In the Orange Free State wheat crops were severely damaged by hail and sudden frost about the middle of November. Nevertheless, good yields were still to be hoped for.

Oceania.

Australia (Cable of January 19): The wheat harvest in Western Australia is almost finished; results exceeded expectations. In South Australia harvesting is proceeding in very good conditions while in New South Wales it is complete; the grain is heavy in both States. In Victoria cropping is well forward but the yield is expected to be much lighter than last year's.

Current information on maize.

Argentina: The maize crop was in average condition at the beginning of January. Lack of rain was the cause of deterioration in several parts of the country.

United States: The yield of maize per harvested acre of 15.5centals (27.7 bushels) has only been exceeded during the past 15 years by the 1937 yield of 15.8 centals (28.3 bushels). The quality of the crop was above average except in parts of the Northwestern and Western States.

Uruguay: The condition of the maize crops during the first decade of January was considered good but rain was needed.

Area and production of maize.

COUNTRIES	† AREA					† PRODUCTION							
	1938	1937	Aver.	% 1938		1938	1937	Average	1938	1937	Average	% 1938	
	and	and	to 1936	and		and	and	to 1936	and	and	to 1936	and	
	1938/	1937/	1933	1937	Aver-	1938/	1937/	1933/33	1938/	1937/	1933/33	1937	Aver-
	1939	1938	to 1936	and	age	1939	1938	to 1936	1939	1938	to 1936	and	age
	1,000 acres					1,000 centals			1,000 bushels				
					= 100								= 100
* Albania . . .	...	227	208	...	...	...	3,020	2,666	...	5,393	4,760	...	...
Germany ¹⁾ . .	343	254	183	135.2	187.5	8,593	6,672 ²⁾	3,792	15,344	11,915 ³⁾	6,771	128.8	—
Bulgaria . . .	1,731	1,685	1,751	102.7	98.9	11,427	18,944	19,876	20,406	33,828	35,493	60.3	57.5
* Spain . . .	...	...	1,082	...	...	...	...	15,856	...	...	28,314	...	...
France . . .	848	854	842	99.3	100.7	14,040	11,344	10,838	25,071	20,257	19,353	123.8	129.5
Greece . . .	670 ⁴⁾	652 ⁵⁾	618	102.7	108.4	4,394	5,934	5,182	7,846	10,596	9,253	74.0	84.8
Hungary . . .	2,905	2,955	2,830	98.3	102.6	56,896	60,820	45,640	101,600	108,607	81,500	93.5	124.7
Italy . . .	3,297 ⁶⁾	3,167 ⁷⁾	3,242	104.1	101.7	58,077	67,149	57,896	103,710	119,910	103,385	86.5	100.3
* Poland . . .	427 ⁸⁾	467 ⁹⁾	371	91.5	115.1	6,658	7,714	5,484	11,889	13,774	9,792	86.3	121.4
* Portugal . . .	218	228	227	95.7	95.9	...	2,274	2,067	...	4,060	3,691	...	...
Romania . . .	...	909	1,040	...	...	...	7,153	7,001	...	12,774	12,503	...	...
* Switzerland . .	12,355	12,749	12,374	96.9	99.8	116,845	104,760	116,337	208,653	187,071	207,745	111.5	100.4
Czechoslovakia ¹⁰⁾	271 ¹¹⁾	239 ¹²⁾	209	113.3	129.5	5,088	4,930 ¹³⁾	3,427	9,087	8,804 ¹⁴⁾	6,121	105.2	148.5
Slovakia ¹⁵⁾ . .	176 ¹⁶⁾	217 ¹⁷⁾	173	81.3	101.9	...	2,636 ¹⁸⁾	1,996	...	4,707 ¹⁹⁾	3,564	...	...
Yugoslavia . . .	6,534	6,649	6,371	99.0	103.3	97,159	117,636	95,831	173,499	210,065	171,128	82.6	101.4
Total Europe . .	29,431	29,671	28,791	99.2	102.2	379,177	405,903	364,303	677,105	734,827	650,541	93.4	104.1
* U. S. S. R. . .	6,034 ²⁰⁾	6,618	8,463	91.2	71.3	...	...	81,924 ²¹⁾	146,293 ²²⁾
Canada . . .	180	166	152	108.8	118.5	4,306	3,032	3,445	7,690	5,415	6,151	142.0	125.0
Unit. St. { 11	91,792	93,741	99,544	97.9	92.2	1,423,653	1,484,719	1,187,521	2,542,238	2,651,284	2,120,574	95.9	119.9
{ 12	(82,106)	(81,483)	...	100.8	...	1,275,265	1,316,167	1,018,659	2,277,259	2,350,299	1,819,034	96.9	125.2
* Mexico . . .	...	...	7,526	...	...	...	...	39,128	...	...	69,872	...	...
Total N. Am. . .	91,972	93,907	99,696	97.9	92.3	1,427,959	1,487,751	1,190,966	2,549,928	2,656,699	2,126,725	96.0	119.9
* China . . .	...	...	11,201	...	...	...	...	137,824	...	...	246,115	...	...
Manchukuo . . .	...	3,445	2,839	...	...	51,704	44,000	39,487	92,329	78,572	70,513	117.5	130.9
* Palestine . . .	...	13	14	...	...	...	191	79	...	341	142	...	...
* Syria & Leb. . .	...	43	54	...	...	...	599	520	...	1,070	928	...	...
* Transjord. . .	...	...	...	...	...	...	...	...	...	...	...	...	...
Turkey . . .	...	1,117	1,016	...	...	15,753	11,929	11,239	28,130	21,301	20,069	132.1	140.2
Total Asia . . .	...	4,562	3,855	...	...	67,457	55,929	50,726	120,459	99,873	90,582	120.6	133.0
Ital. East. Afr. .	...	...	...	...	...	...	...	...	...	...	...	...	...
* Eritrea . . .	...	25	26	...	...	...	86	184	...	154	329	...	...
* Somalia . . .	...	...	34	...	...	...	...	317	...	...	565	...	...
Algeria . . .	...	16	19	95.8	80.0	...	83	78	...	148	204	105.7	72.4
Egypt ¹⁴⁾ . . .	1,554	1,613	1,698	96.0	91.1	34,782	36,275	36,297	62,110	64,777	64,816	95.5	95.5
Kenya ¹⁵⁾	6	7	...	...	...	127	141	...	227	251	...	...
French Mo- rocco . . .	...	118	122	...	...	1,772	1,936	1,893	3,165	3,457	3,379	91.5	93.6
* Tunisia ¹⁷⁾ . .	1,068	1,120	963	95.3	110.9	4,255	3,561	4,171	7,598	6,360	7,449	119.5	102.0
Total N. Afr. . .	2,755	2,873	2,809	96.0	98.1	40,892	41,977	42,616	73,021	74,961	76,099	97.4	96.0
* Argen- (3)	...	(15,319)	(16,567)	...	...	...	...	...	...	...	...	...	...
tina (18)	...	7,307	11,641	...	...	...	97,533	193,978	...	174,166	346,391	...	...
* Chile . . .	...	107	123	...	...	...	1,238	1,490	...	2,211	2,661	...	...
* Madagascar . .	...	280	205	...	...	...	2,756	1,825	...	4,921	3,259	...	...
* Un. of (16)	...	6,051	5,780	...	...	...	...	...	...	...	...	...	...
S. Afr. (19)	...	...	...	...	...	...	35,218	30,864	...	62,889	55,114	...	...
TOTALS \$. . .	128,720	131,013	135,151	98.2	95.2	1,915,485	1,991,560	1,648,611	3,420,513	3,556,360	2,943,947	96.2	116.2

†) The years indicated are those of the harvest, single years referring to the Northern Hemisphere, double years to the Southern. — *) Not included in the total. — §) In calculating the totals account has been taken of the probable area cultivated in some countries for which estimates of production are available but not those of area. — 1) Including Austria. — 2) Estimation for the old territory. — 3) Area sown. — 4) Maize sown in spring. — 5) Maize sown in summer. — 6) Crop grown alone. — 7) Mixed crop. — 8) Average 1934 to 1936. — 9) Area fixed by the plan. — 10) Average 1932 to 1935. — 11) Maize for all purposes. — 12) Maize harvested as grain. — 13) Including Tigris. — 14) *Nili* maize. — 15) *Sefi* maize. — 16) Cultivation by Europeans. — 17) Maize and sorghum. — 18) Area harvested. — 19) Cultivation by natives.

Netherlands Indies: Java and Madura. — The Department of Agricultural Statistics of the Central Statistical Office communicates the following details on the maize area:—

	1938 acres	1937 acres
Area harvested in November	372,100	268,900
Area harvested from January 1 to November 30	4,518,400	4,680,500
Area of standing crops at the end of November.	2,466,900	2,086,800

Indochina: Maize harvesting was finished in Thanh-hoa in Annam in October; the average yield was only 9 centals (16 bushels) per acre. The new sowings are generally good in appearance but floods have damaged some areas. The same is true of Cambodia where the September sowings on the banks of the Mekong were destroyed in October by the overflowing of the river. Sowings on red soils, however, give promise of a good crop.

Egypt: Harvesting of autumn maize was finished during December except in a few patches in Assiut, Quena and Asuan Provinces. The work is active in husking and storing. Harvesting of autumn millet was terminated in all localities except in Quena and Asuan where harvesting was progressing in the last cultivations. According to the first estimate, the total area cultivated to millet in 1938 is 404,000 acres, an increase of 21.8 per cent. on 1937 and one of 23.9 on the five-year average 1932-36; total production is estimated at 10,361,000 centals (20,722,000 bushels), an increase of 15.6 per cent. on 1937 and one of 18.5 on the five-year average.

Union of South Africa: Practically all the maize-growing areas of Orange Free State, Transvaal and Natal experienced good rains in November. But towards the middle of the month there was a sudden cold spell with frost and hail. There were also strong winds in Natal. Young standing maize was damaged in Natal. In Transvaal, however, the crop was still promising. A fair amount of ploughing and planting had been done in the Orange Free State.

Current information on rice.

United States: The 1938 rice crop of 23,536,000 centals (52,303,000 bushels) is the second largest rice crop produced in the United States and only 2 per cent. below the record crop of 1937. The average yield was 22.0 centals (49.0 bushels) per acre.

Burma (Telegram of 17 January): According the fourth report on the rice crop of 1938-39, the area sown is estimated at 12,809,900 acres, an increase of 0.1 per cent. on last season's fourth estimate of 12,798,200 and one of 1.5 per cent. on the corresponding average of 12,626,100 acres for the five years ending 1936-37. This is larger than any corresponding estimate since 1933-34. The area destroyed is now estimated at 225,700 acres, a decrease of 15.4 per cent. on the fourth estimate of 266,800 acres last season and one of 30.7 per cent. on the corresponding average of 325,900 acres.

Though there has been a considerable increase in the damaged area since the previous month's report, this figure remains the lowest of recent years. In the result, the fourth estimate of area to mature is 12,584,200 acres, an increase of 0.4 per cent.

Area and production of rice.

COUNTRIES	AREA						PRODUCTION OF ROUGH RICE							
	1938/39	1937/38	Average 1932/33 to 1936/37	% 1938/39		1937/38	1937/38	Average 1932/33 to 1936/37	1935/39	1937/38	Average 1932/33 to 1936/37	% 1938/39		
				1937/ 1938	Aver- age = 100							1937/ 1938	Aver- age = 100	
1,000 acres				1,000 centals				1,000 bushels of 45 lb.						
Bulgaria . . .	18	14	19	124.7	92.7	580	272	386	1,290	605	858	213.4	150.3	
Greece. ¹⁾	8	...	3	...	265.0	209		37	464		82	...	564.4	
Italy	367	357	339	102.7	108.1	15,982	17,445	15,390	35,516	38,767	34,199	91.6	103.8	
U. S. S. R. . . . ²⁾	385	368	325	104.8	118.6	...	7,381	5,218	...	16,402	11,596	...	...
United States	1,068	1,088	856	98.2	124.7	23,536	24,017	18,683	52,303	53,372	41,518	98.0	126.0	
Burma ³⁾ ⁴⁾	12,584	12,531	12,300	100.4	102.3	184,249	160,608	167,189	409,442	356,907	371,530	114.7	110.2	
Chosen	3,947	4,017	4,092	98.3	96.5	98,541	109,645	72,465	218,975	243,651	161,031	89.9	136.0	
India ⁵⁾	69,837	69,131	67,353	101.0	103.7									
Japan.	7,880	7,877	7,849	100.0	100.4	262,230	271,361	251,932	582,721	603,012	559,839	96.6	104.1	
Manchukuo . . .	...	1,023	528	...	...	15,962	15,508	8,250	35,471	34,462	18,334	102.9	193.5
Siam ⁶⁾ ⁷⁾	7,710	7,273	6,996	106.0	110.2	108,865	100,436	100,658	241,917	223,188	223,680	108.4	108.2	
Egypt.	492	273	462	180.1	106.5	15,740	8,207	13,213	34,977	18,237	29,361	191.8	119.1	

1) Sown area. — 2) Area planned. — 3) Fourth report. — 4) Area to mature. — 5) Second report. — 6) First report.

on the corresponding estimate of 12,531,400 for 1937-38 and one of 2.3 per cent. on the corresponding average of 12,300,200 acres. It is the highest estimate of the period and above last season's final estimate.

The fourth estimate of production is 13,690 million pounds of white rice and derivatives, an increase of 14.7 per cent. on the corresponding estimate of 11,933 last season and one of 10.2 per cent. on the corresponding five-year average of 12,422 million pounds. This is easily the highest estimate of the period.

The estimate of export surplus has been raised from 7,840 million pounds of white rice and derivatives to 8,064 million pounds, a figure 16.1 per cent. above the final forecast of last season's exports and 8.4 per cent. above the average of 7,437 million pounds actual exports for the five seasons ending 1936-37. It was exceeded, however, by the exports from the 1933-34 crop.

India: In Bengal light scattered showers fell in the week ending January 11. Harvesting of winter padi was being completed. Crop prospects were favourable. In Orissa no rain fell in the month ending January 9; harvesting of winter padi was going on and standing crops were in fair condition. Similarly in Bihar no rain fell during the same period. Crops were in fair condition save in Saran, where flooding had occurred. In Assam on January 16 the weather was reported to have been seasonable and crop prospects to be fair.

In the Central Provinces, where the sky had been clear during the month ending January 7, threshing was going on.

In Madras there was light to moderate rain in the south and light rain in Malabar. Sowing of padi was proceeding. On January 7 the condition of crops was fair except in the Circars and the Carnatic, where they were withering owing to the failure of the northeast monsoon. In the Circars extensive cyclone damage had also occurred.

Netherlands Indies: Java and Madura. — The Department of Agricultural Statistics of the Central Statistical Office communicates the following details on the rice area:—

	1938 acres	1937 acres
<i>Area harvested in November: —</i>		
Wet padi	233,000	252,000
Dry padi.	6,400	1,200
<i>Area harvested from January 1 to November 30:—</i>		
Wet padi	8,627,300	8,444,200
Dry padi.	956,600	960,800
<i>Area of standing crops in the end of November:—</i>		
Wet padi	1,112,200	1,030,000
Dry padi	558,000	570,600

Indochina: The situation of the rice crops in October in the various regions, except Laos, was as follows.

In Annam, the eighth-month rice harvest, hindered by the floods of the end of December reported in the last issue of the Crop Report, was finished everywhere about the middle of October. Yields were satisfactory except in the far south. Tenth and twelfth-month rices benefited considerably from rains; they were good in appearance everywhere except in the south and far south, where prolonged submersion had an unfavourable effect. Preparatory work for third-month crops began; the beds looked well and in some places planting out had begun.

In Cambodia, as a result of rains, sowing and transplanting went forward in October. On high, easily drained-fields, growth was satisfactory. Floating rice looked well generally. Some fields were flooded by the rise of the Mekong; damage was limited and largely offset by the good growth of other fields and by the increase in the cultivated area.

In Cochinchina the October rains were beneficial. Earing of early, and mid-season rice was normal; in many provinces the crop is expected to be larger than last year's. The growth of main-season rice was excellent. Earing of floating rice occurred in good conditions. Harvesting of *samo* rice and third-month rice was going on in several provinces.

In Tonkin there was much rain in October and a typhoon on the eighth and ninth of the month. Damage, however, was limited. It was considerable only in the rather low-lying areas where, drainage is always difficult in the rainy season and where the crops are uncertain. Harvesting of tenth-month rice was finished; yields were generally distinctly above those of last year. Harvesting of mountain rice was finished with satisfactory yields. Flowering of main season rice was over. Sowing of fifth-month rice was effected in many places.

British Malaya: In November the west coast padi areas continued to look very promising. In Pahang and Kelantan, however, weather conditions throughout the season had not been so favourable. In Negri Sembilan the recent spell of dry weather was said to have caused serious damage to fields which are entirely dependent on rainfall; in many parts of this State planting was carried out late owing to unfavourable conditions. In Southern Selangor most of the padi was ripe, and much had been harvested.

It was reported that this season's crop had so far been reasonably free from serious attacks of disease. Rat damage also had been slight.

Current information on potatoes.

Area and production of potatoes.

COUNTRIES	AREA					PRODUCTION								
	1938	1937	Average	1938		1938	1937	Average	1938	1937	Average	1938		
	and	and	1932	%		and	and	1932	and	and	1932	and	%	
	1938/39	1937/38	1932/33	and	Average	1938/39	1937/38	1932/33	1938/39	1937/38	1932/33	1938/39	Average	
	1,000 acres					1,000 centals			1,000 bushels of 60 lb.					
	1938/39	1937/38	1932/33	1938/39	Average	1938/39	1937/38	1932/33	1938/39	1937/38	1932/33	1938/39	Average	
				= 100	= 100							= 100	= 100	
*Albania . .	...	1	1)	...	...	...	72	24	...	120	40	...	...
Germany (including Austria) . .	7,652	7,674	7,531	99.7	101.6	1,181,682	1,298,527	1,048,253	1,969,430	2,164,169	1,747,054	91.0	112.7	
*Belgium . .	364	390	407	93.5	89.5	...	68,142	77,703	2,625	113,567	129,503	...	...
Bulgaria . .	49	54	36	90.9	135.8	1,575	3,220	2,056	2,625	5,366	3,427	48.9	76.6	
Denmark . .	195	199	185	97.9	105.6	30,644	29,189	28,698	51,073	48,648	47,829	105.0	106.8	
*Spain . .	...	...	2) 1,103	...	...	...	...	2) 110,742	...	...	2) 184,566	...	...
Estonia . .	193	187	175	103.3	109.9	21,994	21,729	20,050	36,656	36,214	33,416	101.2	109.7	
Finland . .	226	214	203	105.5	111.6	29,101	30,588	26,925	48,501	50,979	44,874	95.1	108.1	
France . .	3,468	3,555	3,483	97.6	99.6	376,865	350,787	341,489	628,096	584,633	569,736	107.4	110.2	
*Greece . .	52	58	44	89.0	117.3	...	3,496	2,377	...	5,827	3,962	...	...
Hungary . .	720	729	722	98.7	99.7	51,086	56,424	41,340	85,141	94,039	68,899	90.5	123.6	
Ireland . .	327	327	340	100.0	96.1	71,094	60,622	58,488	118,489	101,036	97,480	117.3	121.6	
Italy . . (s)	85	78	70	107.8	120.0	8,051	7,487	3) 4,981	13,418	12,477	8,302	107.5	161.6	
Latvia . . (s)	969	965	982	100.4	98.6	63,614	63,334	54,093	106,021	105,554	90,154	100.4	117.6	
Lithuania . .	340	314	276	108.3	123.4	38,611	39,287	31,421	64,350	65,476	52,367	98.3	122.9	
Luxemburg . .	460	456	439	100.8	104.8	45,598	55,335	44,376	75,995	92,223	73,958	82.4	102.8	
Malta . .	41	43	41	94.9	100.4	6,220	4,527	4,047	10,367	7,545	6,745	137.4	153.7	
Norway . .	9	10	8	89.0	111.7	...	629	755	521	1,049	1,258	869	83.4	120.7
Netherlands: p. for consumption . .	132	128	123	103.2	107.9	20,671	18,972	20,612	34,452	31,619	34,352	109.0	100.3	
p. for starch . .	274	278	305	98.7	89.9	...	...	...	...	...	...	...	...
Poland . .	69	63	62	111.2	111.7	62,281	44,200	50,749	103,799	73,665	84,580	106.6	95.7	
*Portugal . .	7,488	7,365	6,908	101.7	108.4	743,311	886,724	699,124	1,238,827	1,477,843	1,165,183	83.8	106.3	
*Romania: single crop . .	...	75	80	...	...	...	13,141	12,686	...	21,902	21,143	...	...
p. with maize . .	...	533	502	...	...	...	42,463	38,507	...	70,771	64,178	...	...
United Kingdom: England & Wales . .	...	242	214	...	...	...	3,977	3,087	...	6,628	5,144	...	...
Scotland . .	475	455	486	104.3	97.7	78,086	70,022	71,313	130,144	116,704	118,854	111.5	109.5	
*Northern Ireland . .	135	135	141	99.5	95.5	20,563	20,653	22,938	34,272	34,421	38,229	99.6	89.6	
Sweden . .	123	125	136	98.5	90.9	...	19,443	20,916	...	32,405	34,860	...	...
Switzerland . .	...	333	328	...	...	41,283	41,603	42,751	68,803	69,337	71,250	99.2	96.6
Czechoslovakia (s) . .	123	121	115	101.8	106.9	16,513	19,353	15,777	27,521	32,255	26,295	85.3	104.7	
Slov. (s) . .	102	104	98	97.9	103.7	9,694	9,157	7,197	16,157	15,261	11,995	105.9	134.7	
Slov. (s) . .	1,785	1,810	1,746	98.6	102.2	207,001	263,392	193,119	344,994	438,978	321,859	78.6	107.2	
*Yugoslavia . .	...	657	636	...	...	...	35,717	33,874	...	59,528	56,455	...	...
Total Europe . .	25,650	25,597	24,803	100.2	103.4	3,126,167	3,410,125	2,845,037	5,210,183	5,683,430	4,741,638	91.7	109.9	
*U. S. S. R. . .	16,578	18,303	16,235	90.6	102.1	...	...	1,174,642	...	...	1,957,698	...	...
Canada . .	522	531	525	98.2	99.3	35,938	42,547	41,708	59,897	70,912	69,513	84.5	86.2	
United States . .	3,008	3,174	3,432	94.8	87.6	221,578	236,483	221,176	369,297	394,139	368,627	93.7	100.2	
Cyprus . .	...	7	6	...	...	672	682	442	1,120	1,136	737	98.6	152.0
*Palestine . .	...	2	1	...	...	...	210	51	...	350	85	...	...
*Syria and Lebanon . .	...	30	17	...	...	...	2,636	869	...	4,393	1,447	...	...
Turkey . .	...	136	115	...	...	6,588	4,111	3,009	10,979	6,851	5,014	160.3	219.0
Italian East Africa: *Eritrea . .	...	1	1	...	...	...	2	5	...	...	8	...	...
Algeria . . (s)	17	18	18	94.9	96.7	1,468	1,172	952	2,447	1,954	1,587	125.2	154.2	
*Egypt . .	...	26	23	...	...	...	1,726	1,247	...	2,876	2,078	...	...
*Tunisia . .	...	10	8	...	...	...	995	768	...	1,659	1,280	...	...
*Dutch Indies: *Java and Madura . .	...	6	5	...	...	...	143	150	...	239	250	...	...
*Chile . .	19	26	42	73.5	46.1	...	...	1,772	...	...	2,953	...	...
*New Zealand . .	...	126	128	...	...	...	9,644	10,266	...	16,073	17,109	...	...
TOTALS . .	29,340	29,463	28,899	99.6	101.5	3,392,411	3,695,120	3,112,324	5,653,920	6,158,422	5,187,116	91.8	109.0	

* Not included in the totals. — s) Early potatoes. — f) Late potatoes. — 1) Under 1,000 acres. — 2) Average 1932 to 1935. — 3) Average 1935 and 1936.

France: The severe cold of the last decade of December did considerable damage to the insufficiently protected potato silos.

Argentina: Potatoes were still being planted in the south of the province of Buenos Aires in December. The area in this province is expected to be smaller than last year's. Lifting of earlies gave generally satisfactory yields except in parts of Santa Fé and Santiago del Estero.

United States: The yield per acre of potatoes in 1938 was 73.7 centals (122.8 bushels) compared with 74.5 centals (124.2 bushels) in 1937 and with a ten-year (1927-36) average of 66.4 centals (110.6 bushels).

Algeria: Early potatoes were planted in December. In Oran it seemed likely at the end of the month that the area planted would be much larger than last year's. Cold weather and hailstorms did some damage to the crops.

Sugar prices in 1938 and beet sugar production.

The markets considered in this brief review of price movements in 1938 are New York, London, Surabaya, Prague, Paris and Magdeburg. The prices given in the table are Thursday quotations.

In 1937 sugar prices at New York declined gradually with only slight fluctuations until, at the end of December, they touched one of the lowest levels of the year. The downward tendency continued almost throughout the first six months of 1938 under the influence of an output exceeding consumption requirements which contracted slightly in 1937-38. Other occasional and temporary factors were the Government's declaration in the first days of March that sugar prices were satisfactory and that accordingly no measures aiming at raising them were contemplated, contrary to the desire of the association of beet-growers and beet-sugar manufacturers; and, in the middle of April, a letter from the Secretary of Agriculture substantially repeating this declaration.

In July and August sugar prices remained low but at levels slightly above those of June. This slight improvement was probably due partly to a statement issued in June by the Secretary of Agriculture announcing a reduction in the marketable quotas of domestic sugar and partly to another communication at the end of August from the same source indicating that unsold quotas of beet-sugar would not be re-allotted.

The upward movement continued in September. The political situation in Europe undoubtedly contributed to this rise but only to a limited extent; in fact, during October, when the European situation was becoming more settled prices remained at practically the same levels. From November to the end of the year the decline was resumed owing to the restricted volume of business, aggravated by the increase in the quantities of sugar admitted for consumption in 1939 which were much larger than the expectations in the quarters interested.

The London sugar market, like that of New York was rather weak in the first half of 1938 with a downward tendency due to the poor demand for sugar, consumption of which was smaller than it was in the previous year. The market was stagnant also in March and showed no reaction even to the troubled Euro-

pean situation. Similarly, in April, it was almost unaffected by the Chancellor of the Exchequer's statement that, as a precautionary measure, the Government was storing large supplies of certain commodities, including sugar.

In the middle of July, the International Sugar Council, after an examination of the sugar industries in the countries adhering to the international agreement, decided the quantities of sugar that these might place on the free market.

Sugar prices.

DATE	New-York	London		Surabaya	Prague	Paris	Magdeburg
	Cuba centrifugals 96° c. & f. cents per lb.	Cane centrifugals 96° c. i. f sh. per 112 lb.	Granulated duty free sh. per 112 lb.	s. h. s. spot — fl. per 100 kg.	Raw sugar 88° spot — crowns per 100 kg.	No. 3 Crystallized frs. per 100 kg.	Refined — Marks per 50 kg.
6 January 1938. . .	2.30	6.2 1/4	20/5 1/4	7.92	75.75	305.00	31.35
13 " " " " " " " "	2.35	6.1 1/2	20/5 1/4	7.92	75.50	307.00	31.45
20 " " " " " " " "	2.30	5.11 1/4	20/3 3/4	7.92	74.87	301.50	31.47
27 " " " " " " " "	2.30	5.9 3/4	20/2 1/4	7.92	73.12	300.00	31.47
3 February " " " " " " " "	2.26	5.6	19.9 3/4	7.92	68.00	303.75	31.50
10 " " " " " " " "	2.25	5.2 1/4	19.8 1/4	7.90	66.25	298.50	31.50
17 " " " " " " " "	2.27	5.5 1/4	19.6 3/4	7.87	67.00	303.25	31.46
24 " " " " " " " "	2.25	5.4 1/2	19.11 1/4	7.85	66.25	295.50	31.47
3 March " " " " " " " "	2.20	5.4 1/2	19.11 1/4	7.87	66.25	283.75	31.47
10 " " " " " " " "	2.17	5.2 1/4	19.11 1/4	7.87	65.25	295.25	31.35
17 " " " " " " " "	2.11	5.1 1/4	19.2 1/4	7.87	65.25	288.25	31.47
24 " " " " " " " "	2.10	5.0 3/4	19.5 1/4	7.87	65.00	289.50	31.44
31 " " " " " " " "	2.10	5.0	19.3 3/4	7.80	64.37	288.50	31.50
7 April " " " " " " " "	2.05	4.10 1/2	19.2 1/4	7.80	61.62	292.00	31.50
14 " " " " " " " "	1.91	4.9 3/4	19.0 3/4	7.77	60.25	—	31.35
21 " " " " " " " "	1.91	5.0	19.0 3/4	7.77	60.75	295.75	31.50
28 " " " " " " " "	1.92	5.0 3/4	19.2 1/4	7.77	61.25	291.50	31.35
5 May " " " " " " " "	1.90	5.1 1/4	19.2 1/4	7.77	61.00	295.25	31.42
12 " " " " " " " "	1.85	5.0 3/4	19.2 1/4	7.77	61.50	299.75	31.50
19 " " " " " " " "	1.80	5.0	19.2 1/4	7.77	62.25	296.50	31.50
26 " " " " " " " "	1.75	4.11 1/4	19.0 3/4	7.77	62.25	—	—
2 June " " " " " " " "	1.75	5.1 1/2	19.2 1/4	7.77	63.75	295.75	31.50
9 " " " " " " " "	1.80	5.1 1/2	19.2 1/4	7.77	64.00	297.00	31.50
16 " " " " " " " "	1.80	5.2 1/4	19.3 3/4	7.77	64.00	294.25	31.47
23 " " " " " " " "	1.76	5.0 3/4	19.3 3/4	7.77	64.50	295.00	31.50
30 " " " " " " " "	1.78	5.0 3/4	19.3 3/4	7.77	64.50	295.75	31.46
7 July " " " " " " " "	1.81	5.0	19.3 3/4	7.77	64.25	293.75	31.35
14 " " " " " " " "	1.90	5.5 1/4	19.6 3/4	7.77	66.50	—	31.47
21 " " " " " " " "	1.92	5.4 1/2	19.8 1/4	7.77	1) 70.62	294.25	31.47
28 " " " " " " " "	1.90	5.3 3/4	19.8 1/4	7.77	1) 70.87	295.50	31.42
4 August " " " " " " " "	1.85	5.4 1/2	19.6 3/4	7.77	1) 71.25	295.75	31.45
11 " " " " " " " "	1.85	5.3 3/4	19.6 3/4	7.77	1) 71.25	300.25	31.42
18 " " " " " " " "	1.85	5.3 3/4	19.6 3/4	7.77	1) 70.12	298.75	31.42
25 " " " " " " " "	1.90	5.4 1/2	19.6 3/4	7.77	1) 69.62	298.50	31.35
1 September " " " " " " " "	2.05	5.5 1/2	19.6 3/4	7.77	1) 69.62	307.50	31.35
8 " " " " " " " "	2.02	5.5 1/4	19.6 3/4	7.77	1) 70.75	299.50	31.50
15 " " " " " " " "	2.10	5.6	19.9 3/4	7.77	1) 73.75	306.00	31.50
22 " " " " " " " "	2.10	5.6 3/4	19.11 1/4	7.77	1) 2) 73.75	309.50	31.47
29 " " " " " " " "	2.15	5.6 3/4	20.0 3/4	7.77	—	318.50	—
6 October " " " " " " " "	2.15	5.3	20.0 3/4	7.77	—	303.25	31.45
13 " " " " " " " "	2.20	5.3 3/4	19.9 3/4	7.77	—	297.25	31.35
20 " " " " " " " "	2.15	5.1 1/2	19.6 3/4	7.77	—	297.25	31.35
27 " " " " " " " "	2.20	5.3	19.7 3/4	7.77	—	300.00	31.35
3 November " " " " " " " "	2.15	5.5 1/4	19.9	7.77	59.75	301.00	31.45
10 " " " " " " " "	2.15	5.9	19.10 1/2	7.77	61.50	302.50	31.47
17 " " " " " " " "	2.15	5.9 3/4	20.1 1/2	7.77	63.75	308.75	31.50
24 " " " " " " " "	2.10	5.10 1/2	20.0 3/4	7.77	63.75	310.50	31.42
1 December " " " " " " " "	2.10	5.9 3/4	19.11 1/4	7.77	64.25	314.25	31.47
8 " " " " " " " "	1.95	5.11 1/4	20.0 3/4	7.77	64.25	314.00	31.50
15 " " " " " " " "	1.95	6.1 1/2	20.2 1/4	7.77	64.75	314.50	31.47
23 " " " " " " " "	1.95	6.2 1/4	20.5 1/4	7.77	65.25	316.50	31.35
29 " " " " " " " "	1.95	6.4	20.6 3/4	7.77	65.75	322.00	—

1) Delivery October. — 2) September 21.

Their decisions appeared to be sufficiently cautious and were quickly followed by a rise in the London quotations. There was a slight reaction in August, a normal occurrence after unexpected increases in quotas. In September prices moved upwards under the influence of European events.

During October sugar prices weakened as a result of the international *détente* but early in November the quotations again went up and remained at the new levels until the close of the year as a result of the first estimates of the European beet-sugar production which appeared to be slightly smaller than the 1937-1938 output.

The year 1938 opened on the Surabaya market with rather high quotations following the recovery in business which occurred at the end of 1937. Levels continued high during the whole of January but declined in sympathy with world prices until the beginning of April. Thereafter they remained stationary until the end of the year.

The Java quotations, of course, do not accurately reflect the actual situation, since prices are fixed for each occasion by the Nivas and are not published. Hence the official quotations are nominal and do not reflect the market situation. Sales in the five months January to May were rather limited and below those of the corresponding period of the previous year but the quotations were rather high. In June, July and the first half of August sales were considerable yet the published quotations were lower than in the earlier months. From the middle of August to the end of the year the quantities sold were very limited with, however, a considerable recovery at the end of December but the official quotations remained at the levels of the earlier period.

Prices at Prague from the beginning of the year up to September corresponded fairly closely with those at London and, to a smaller degree, those at New York. Thus, there was a decline up to mid-April, owing to the accumulations on the world market, and a recovery at the end of April on the announcement of the British Government's storage policy. This recovery was confirmed by moderate activity in the following months, particularly after the export quota decisions of the International Sugar Council. During the first three weeks of September quotations rose more owing to the impact of political events than to genuine market movements until the closing of the market, which lasted a month.

At the end of October, on the reopening of the exchange, prices were rather low but gradually rose, accompanied by a new optimism which was a natural reaction after the preceding period of tension.

The Paris market began with fair activity but later business contracted, and prices, like those on the world market, declined almost continuously up to the end of April. Prices then rose slowly owing to a recovery in business and to the unfavourable course of the beet season in France. There was finally a marked rise in September caused by the European complications. In October, after the Munich meeting, prices fell owing to the natural reaction and owing to the drop in purchases necessary for the disposal of the supplies acquired in September. In November there was a further recovery in business, accompanied by a gradual increase in quotations, which continued throughout

December. This movement was attributable to the delay in factory activity, to the meagre yields of the current year and to the suspension of transport on frozen rivers.

Sugar prices on the Magdeburg market varied from a minimum of RM. 31.35 to a maximum of RM. 31.50. Market movements (production, deliveries

Production of beet-sugar (raw).

COUNTRIES	PRODUCTION (1 Sept. - 30 December)		TOTAL PRODUCTION DURING THE SEASON			% 1938/39	
	1938/39	1937/38	1938/39 1)	1937/38	Average 1932/33 to 1936/37	1937/38 = 100	Average = 100
	Thousand centals						
Germany	2) 31,825	2) 36,517	3) 46,817	52,193	37,859	—	—
Belgium	2) 4,007	2) 4,896	4,266	5,234	5,488	82	78
Bulgaria	444	621	463	662	441	70	105
Denmark . . . . .	...	...	4,189	5,269	4,328	79	97
Spain . . . . .	...	...	2,976	3,331	5,412	89	55
Finland	290	187	333	243	197	137	169
France . . . . .	...	...	19,842	21,367	21,913	93	91
Hungary	2,464	2,448	3,042	2,448	2,731	124	111
Ireland	1,163	1,639	1,603	2,066	1,418	78	113
Italy	8,725	7,852	8,819	7,852	7,269	112	121
Latvia	735	996	838	1,120	937	75	89
Lithuania	458	632	529	632	400	84	132
Netherlands	4,477	5,189	4,808	5,202	5,300	92	91
Poland	2) 7,540	2) 7,295	12,125	12,391	9,299	98	130
Romania	3) 689	2) 660	3,682	1,808	2,374	204	155
United Kingdom	7,118	9,007	7,165	9,387	11,688	76	61
Sweden . . . . .	...	...	6,442	7,634	6,198	84	104
Switzerland . . . . .	...	...	324	267	189	121	171
Czecho-Slovakia . . . . .	...	...	3) 11,585	16,720	13,621	—	—
Yugoslavia . . . . .	...	...	1,196	824	1,826	230	104
<i>Total Europe a) . . . . .</i>	...	...	141,744	156,650	138,888	90	102
U. S. S. R. . . . .	...	...	55,116	55,116	32,060	100	172
<i>Total Europe b) . . . . .</i>	...	...	196,860	211,766	170,948	93	115
Canada	—	—	1,642	1,369	1,475	120	111
United States	—	—	34,647	27,478	28,454	126	122
<i>Total North America</i>	—	—	36,289	28,847	29,929	126	121
Japan	—	—	1,146	1,113	769	103	149
Manchukuo	—	—	463	260	85	178	547
Turkey	—	—	1,036	1,263	1,288	82	80
<i>Total Asia</i>	—	—	2,645	2,636	2,142	100	124
GENERAL TOTALS (a)	—	—	180,678	188,133	170,959	96	106
(b)	—	—	235,794	243,249	203,019	97	116

a) Not including U. S. S. R. — b) Including U. S. S. R. — 1) Approximate data. — 2) Production to the end of November. — 3) Present territory. — 4) Licht's estimate.

and prices) are entirely controlled by the *Hauptvereinigung der deutschen Zuckerwirtschaft* and, being therefore almost entirely shut off from external influences, do not lend themselves even to the briefest analysis.

* * *

The estimates of beet-sugar production (see table on preceding page), now that manufacture is nearly finished in all countries, are much lower in many countries than last season's figures. On the basis of these new estimates and principally of those made by the International Association for Sugar Statistics, some of the figures published have been revised.

The figures for this season in Germany and Czecho-Slovakia refer to their present territories.

The estimate for the U. S. S. R. also has been revised in view of the latest reports on the difficulties encountered in harvesting and transporting the beet to the factories, but this new figure must, like the previous one, be considered as only approximate.

With the new alterations, the aggregate European production of beet-sugar this season is put at 7 per cent. less than last season, while world production is estimated at 3 per cent. less.

E. R.

Current information on sugar.

France: Lifting and transport of beets were completed early in December. Most of the factories finished manufacture by December 20. The remaining silos which were insufficiently protected suffered much damage from the severe cold.

Argentina: In December the condition of sugar-beet was good, particularly on irrigated land.

Sugar cane improved in Tucuman in December as a result of the rainfall of the end of November. Hail did some rather serious damage in parts of this province. Crop condition was generally good in other areas except in the National Territory of Formosa where it was average.

Barbados: It was reported in November that heavy rains had fallen throughout the island and some damage had been done to the coming sugar crop, but a very large crop was expected. The planting of the 1940 sugar crop however was hindered.

United States: The sugar-beet crop, estimated in the December Crop Report at 225,840,000 centals (11,292,000 short tons), is the largest ever obtained in the United States.

The average yield of beet in 1938 was 242 centals (12.1 short tons) per harvested acre compared with 232 centals (11.6 short tons) in 1937 and with a ten-year (1927-1936) average of 220 centals (11.1 short tons).

Some factories began operations about ten days to two weeks in advance of the usual date but the harvest in California began late in July. By the end of the first week in October practically all factories were slicing.

According to the December Crop Report, it was estimated that the 1938 area to be cut for sugar in Louisiana and Florida was 294,000 acres. This is 7.7 per cent. larger than the 273,000 acres cut in 1937 and 26.2 per cent. above the average area cut for sugar in the five preceding years (233,000 acres). Production of cane was forecast at 132,760,000 centals (6,638,000 short tons) compared with 117,840,000 centals (5,892,000 short tons) in 1937 and with an average of 79,084,000 centals (3,954,200 short tons), an increase of 12.7 per cent. and 67.9 per cent. respectively.

Area and production of sugar-beet.

COUNTRIES	AREA					PRODUCTION														
	1938	1937	Average 1932 to 1936	% 1938		1938	1937	Average 1932 to 1936	Average		% 1938									
				1937	Average				1932 to 1936	1938	1937	Average 1932 to 1936	1937	Average						
															1936	1936	1936	1936	1936	1936
1,000 acres	= 100	= 100	1,000 centals	1,000 short tons	= 100	= 100														
Germany 1)2)	1,337	1,225	945	109.2	141.4	367,108	367,679	242,829	18,355	18,384	12,141	99.8	151.2							
Belgium . . .	122	119	128	102.3	94.8	...	30,336	35,133	...	1,517	1,757	...	...					
Bulgaria . . .	29	26	19	111.3	143.9	3,117	3,979	3,248	156	199	162	78.3	96.0							
Denmark 2)	146	99	99	147.5	147.0	29,763	33,169	34,871	1,488	1,658	1,744	89.7	85.4							
Finland 3)	13	8	7	154.6	183.4	2,888	1,874	1,584	144	94	79	154.1	182.4							
France 4)	772	785	785	98.2	98.3	179,020	191,063	196,121	8,951	9,553	9,806	93.7	91.3							
Hungary . . .	109	116	112	94.2	97.7	23,218	22,324	20,322	1,161	1,116	1,016	104.0	114.3							
Ireland . . .	48	62	39	78.2	124.8	...	13,063	9,227	...	653	461	...	...					
Italy . . .	336	330	231	101.8	145.1	71,723	77,500	54,000	3,586	3,875	2,700	92.5	132.8							
Latvia . . .	...	34	31	...	...	5,071	6,151	5,493	254	308	275	82.4	92.3				
Lithuania . .	21	20	14	103.3	149.4	...	4,094	2,529	...	205	126	...	...					
Netherlands .	104	104	106	100.8	98.9	34,613	34,875	37,178	1,731	1,744	1,859	99.2	93.1							
Poland . . .	380	363	280	104.3	135.4	...	71,553	52,265	...	3,578	2,613	...	...					
Romania . . .	...	73	81	...	...	...	10,997	11,828	...	550	591	...	...					
Unit. King.: Engl. and W.	328	306	346	107.4	94.8	47,152	56,627	72,869	2,358	2,831	3,644	83.3	64.7							
Scotland . . .	7	7	5	101.3	153.1	1,411	1,523	1,015	71	76	51	92.6	139.0							
Sweden . . .	125	137	121	91.9	104.0	40,430	45,787	39,332	2,021	2,289	1,967	88.3	102.8							
Switzerland .	...	6	4	...	...	...	1,907	1,368	...	95	68	...	...					
Czechoslov.	408	448	376	91.1	108.5	...	131,992	86,102	...	6,599	4,305	...	...					
Yugoslavia . .	73	52	80	136.6	89.5	...	8,910	12,454	...	445	623	...	...					
U. S. S. R. . .	5)2,916	5)2,943	3,169	99.1	92.0	...	465,177	264,330	...	23,259	13,216	...	...					
Canada . . .	48	45	51	103.0	94.6	10,540	8,360	9,826	527	418	491	126.1	107.3							
U. S. A. . . .	931	752	811	123.8	114.8	225,340	174,980	178,220	11,292	8,749	8,911	129.1	126.7							
Turkey . . .	...	73	56	...	...	...	6,415	8,101	...	321	405	...	...					

1) Including Austria. — 2) Not including crops for seed. — 3) Sugar-beet for factories. — 4) Including beets for distilling. — 5) Figures established from the Plan.

There was some loss and damage occasioned in Louisiana by the several severe freezes in late November and early December. A large acreage of standing cane was windrowed on notice of the first approaching freeze and shortly thereafter additional cane was placed in windrow, thus saving the cane from exposure to further freezing temperatures but, on the other hand, subjecting it to the risk of damage and loss by unseasonably warm weather while waiting to be milled.

The production of raw sugar in the two States was expected to amount to 11,140,000 centals (557,000 short tons) compared with 9,240,000 centals (462,000 short tons from the 1937 crop and with an average for the preceding five years of 6,408,000 centals (320,000 short tons); percentages, 120.6 and 173.8. The crop of 1938 will thus be the largest on record. Faced with a prospective record tonnage, and favoured by the weather, some of the larger factories began their 1938 grinding season earlier than usual.

Leeward Islands: It was reported in November that, owing to excellent rains, the sugar canes in Antigua were showing good growth and that the 1939-40 crop planting was in full swing. In St. Kitts the sugar canes had benefited by seasonable weather

and the 1938-39 sugar crop was estimated at 720,000 centals (36,000 short tons) as compared with 626,000 (31,300) in 1937-38 and 642,000 (32,100) on the average of the preceding five seasons; percentages, 114.6 and 111.6.

Trinidad: It was reported in November that excessive rains had been experienced, resulting in the retarding of the growth of the sugar canes.

Netherlands Indies: Java. — Rainfall was rather uneven in the first half of December but the condition of the cane was satisfactory. The cane is taller than last year.

In the first half of January rainfall was more uneven than in December. In some places there was none, in others it was heavy.

Excessive rains causing flooding occurred only in the Djokja district. The crop was growing in satisfactory conditions except in the north where the cane is rather short (*Aneta*).

Indochina: The growth of the cane was normal in October in the various provinces of the Union. Floods did not do serious damage. Cutting was in progress in Tonkin and the west of Cochinchina.

Egypt: Maturation of sugar cane is proceeding and cutting of the areas destined for the sugar industry was begun in Asuan Province by the last days of December. The crop is normal.

Madagascar: The dry weather of December slightly reduced production from sugar canes. The sugar content, however, increased.

Mauritius: It was reported in November that the manufacture of the sugar crop was nearing completion and was likely to constitute a record. The weather during the month was very dry and rain was badly needed.

Australia: Young cane growth in the southern sugar plantations of Queensland in November was stimulated by adequate rains, but further north some sections needed more rain. On the Burdekin growth was being assisted by irrigation.

Crushing was drawing to a close with densities improving. A total production of 17,000,000 centals (860,000 short tons) of raw sugar is forecast for Queensland.

Current information on vines.

France: Seasonal work was held up by the severe cold of the last decade of December. It was resumed with the thaw and the gradual rise in temperatures of the first week of January. Pruning is not well advanced in the Nirdi. No damage was done to the vines by the frosts despite their severity. They even accelerated and facilitated clarification of wines.

Argentina: Vines in Mendoza were in generally satisfactory condition in December despite the frost and hail damage of earlier months. Prospects fell off in San Juan owing to drought and winds in December. In the Rio Negro valley the grape crop was satisfactory though there was some frost damage. Hail caused rather serious damage in parts of Salta.

United States: Except for some rain damage to raisins during early October and to wine and table varieties in late October, the season was relatively favourable for development of the California crops. Production in the eastern States was materially smaller than in 1937 largely because of severe damage from spring frosts. In addition, there was considerable disease damage in New York, Pennsylvania and Ohio.

Area in vines in certain countries.

Countries and specifications	1938	1937	1932-1936 Average	% 1938	
	1,000 acres			1937 = 100	Average = 100
Germany, all vineyards (a)	181	182	178	99.5	101.7
" " (b)	(201)	(202)	(204)	(99.5)	(98.3)
France, vines for wine (a):					
areas from crop returns (1)	3,646	3,620	3,569	—	—
other areas not declared (1) . . . . .	...	130	233	—	—
Italy, all vineyards (b):					
unmixed crop (<i>superficie integrante</i>)	2,375	2,356	2) 2,362	100.8	100.5
mixed crop (<i>superficie promiscua</i>) (3)	7,288	7,298	2) 7,306	99.9	99.8
Luxemburg, all vineyards (a)	2.3	2.3	2.5	100.0	92.0
Malta, all vineyards (b)	2.0	1.9	1.7	105.5	120.8
Czechoslovakia, all vineyards (b)	65.9	64.3	53.8	102.5	122.3
Algeria, vines for wine (a)	985	975	940	101.0	104.8
French Morocco, vines for wine (4) (a)	57.5	59.2	54.3	97.1	106.0
Tunisia, vines for wine (4) (a)	104.7	105.2	108.3	99.5	98.7

(a) Vines bearing only. — (b) Vines bearing and not bearing.

(1) The declared area corresponds to declarations of wine production. The undeclared area represents the gap between preliminary figures and complete estimates. The latter only are comparable. The numbers of viticulturists who made crop declarations were: 1,575,000 in 1938, 1,615,000 in 1937, and an average of 1,541,000 in the five years ending 1935. — (2) Average 1935 and 1936. Figures for the three preceding years are not comparable. The comparable figures for 1929, given by the *Catasto agrario*, are 2,313,000 and 7,374,000 acres. — (3) Area of vines and other associated crops. The vines actually occupy $\frac{1}{5}$ of this area. — (4) European crops almost exclusively for wine.

Wine production in Europe and North Africa.

COUNTRIES	1938	1937	Average 1932-1936	% 1938	
	1,000 Imperial gallons			1937 = 100	average = 100
Germany 1)	† 52,202	† 55,478	† 68,346	94.1	76.4
*Austria (<i>Land</i>) . . . . .	...	18,764	23,223	...	...
Bulgaria	2) 44,000	2) 33,000	30,916	133	142
*Spain . . . . .	...	...	3)† 438,342	...	...
France 4)	1,273,834	1,130,133	1,253,882	112.7	101.6
*Greece . . . . .	...	† 70,503	39,738	...	...
Hungary	† 61,593	† 98,395	† 72,939	62.6	84.4
Italy	2) 790,000	747,941	834,240	106.0	97.5
Luxemburg	† 1,760	† 1,271	† 1,653	138.5	106.5
*Malta . . . . .	...	456	676	...	...
*Portugal . . . . .	...	177,057	157,451	...	...
Romania	2) 220,000	234,560	181,251	94	121
*Switzerland . . . . .	...	10,318	13,477	...	...
*Czecho-Slovakia . . . . .	...	11,993	9,792	...	...
*Yugoslavia . . . . .	...	63,862	89,704	...	...
<i>Total Europe</i>	2,436,000	2,290,900	2,434,000	107	100
Algeria	472,723	339,289	385,069	139.3	122.5
*Libya . . . . .	...	699	476	...	...
French Morocco	17,114	12,811	9,657	133.6	177.3
Tunisia	44,743	31,565	34,941	141.7	128.1
<i>Total North Africa</i>	534,580	383,665	429,667	139.3	124.4

* Countries excluded from the totals.

† Most coefficient used for the totals: Germany 93 %, Hungary and Luxemburg 94 %.

1) Excluding the *land* of Austria. — 2) Approximate estimate. — 3) Average 1932 to 1935. — 4) Crop declarations for tax purposes. Incomplete figures, the total production being about 65,000,000 Imp. gal. over. — 5) Including musts "*mutés*" by means of alcohol.

Production and utilization of grapes in certain countries.

COUNTRIES AND SPECIFICATIONS	1938	1937	Average 1932/1936	% 1938	
	100,000 lb.			1937 = 100	average = 100
<i>France:</i>					
Grapes crushed for wine	171,000	—	—	—	—
Table grapes 2)	2,904	3,507	2,837	82.8	102.4
<i>Total</i>	174,000	—	—	—	—
<i>Italy:</i>					
Wine grapes actually crushed	12,424	11,721	12,757	106.0	97.4
Grapes consumed fresh	735	678	760	108.5	96.7
comprising:					
Wine varieties	(463)	(437)	(491)	(105.9)	(94.1)
Table varieties	(273)	(241)	(269)	(113.2)	(101.4)
Grapes used for drying	4.4	3.7	12.6	119.0	34.9
<i>Total production</i>	13,164	12,402	13,530	106.1	97.3
comprising:					
from unmixed vines (<i>superficie integrante</i>) . .	(7,154)	(6,252)	(7,218)	(114.4)	(99.1)
from mixed vines (<i>superficie non integrante</i>) .	(6,010)	(6,150)	(6,312)	(97.7)	(95.2)
Raisins	1.4	1.2	4.1	119.3	35.0
<i>Canada:</i>					
Commercial production of grapes	310	544	413	57.0	75.0
<i>United States (distribution according to type of vines):</i>					
a) <i>California:</i>					
Varieties for wine	11,780	12,520	9,308	93.3	126.6
Varieties for table grapes	8,060	8,320	6,528	96.9	123.5
Varieties for drying	26,780	28,140	20,940	95.2	127.9
<i>Total</i>	46,620	49,080	36,776	95.0	126.8
Raisins (dried basis)	5,340	4,938	4,052	108.1	131.8
b) <i>Other States (almost exclusively table varieties)</i>	3,445	6,455	4,886	53.4	70.5

(1) Calculated from an average quantity of 12.7 lb. per Imp. gal. (10.6 lb. per Am. gal.) and a total production of wine of 1,340,000,000 Imp. gal. (1,610,000,000 Am. gal.). — (2) Production of the table grape vines, representing roughly the commercial crop marketed fresh for direct consumption.

Palestine: The 1938 grape crop is reported to have been fair to poor.

Algeria: Manuring and other operations were held up by the November rains. The work was generally fairly well advanced, owing to favourable weather conditions but weeds were spreading considerably at the end of December. Pruning was making good progress in most areas but was slowed down by unfavourable weather and in the Kabylie plain in Constantine it was held up.

The world olive situation in 1938-39.

The 1938-39 olive season was on the whole unsatisfactory, following the extremely large production of olive-oil in the previous season. The 1937-38 oil production of about 24 million centals (323 million American gallons) was, together with that of the 1927-28 and the 1929-30 seasons, among the highest so far recorded.

In the summer of 1938, throughout the olive-growing area, there was a severe and persistent drought which caused very serious shedding. The autumn rains mitigated, but were too late to repair, the damage. Diseases and pests did fairly serious damage to crops in some countries. In addition to these unfavourable seasonal elements, experience shows that it is a feature of olive production that a large crop is nearly always followed by a small crop, as has happened in the last two years.

World production of olive-oil.

COUNTRIES	1938-39	1937-38	Average 1932-33 to 1936-37	Average 1927-28 to 1931-32	% 1938-39		
					1937-38 to 1936-37 = 100	Average 1932-33 to 1936-37 = 100	Average 1927-28 to 1931-32 = 100
	centals	centals	centals	centals	%	%	%
Albania	* 33,100	* 37,500	37,500	1)	88	88	1)
Spain	* 7,054,800	* 8,377,600	7,944,800	8,744,400	84	89	81
France	2) 209,400	2) 176,400	2) 166,900	2) 158,500	119	125	132
Greece	* 1,736,100	3,949,600	2,306,000	1,997,200	44	75	87
Italy	* 3,747,900	6,109,500	4,263,500	4,464,400	61	88	84
Portugal	* 771,600	2,144,200	938,700	1,197,800	36	82	64
Yugoslavia	* 77,200	158,700	82,500	106,500	49	94	72
<i>Total Europe</i>	<i>13,630,100</i>	<i>20,953,500</i>	<i>15,739,900</i>	<i>3) 16,706,700</i>	<i>65</i>	<i>87</i>	<i>82</i>
Argentina	* 1,300	* 1,300	1,100	400	100	120	300
United States	* 19,800	* 17,600	17,600	14,300	112	112	138
<i>Total America</i>	<i>21,100</i>	<i>18,900</i>	<i>18,700</i>	<i>14,700</i>	<i>112</i>	<i>113</i>	<i>143</i>
Cyprus	* 44,100	55,100	20,300	34,400	80	217	128
Italian Aegean Islands	* 22,000	24,300	20,300	25,800	91	109	85
Palestine	225,500	208,300	66,100	54,500	108	341	414
Syria and Lebanon	* 220,500	425,500	242,300	259,000	52	91	85
Turkey	* 881,900	* 771,600	653,000	396,800	114	135	222
<i>Total Asia</i>	<i>1,394,000</i>	<i>1,484,800</i>	<i>1,002,000</i>	<i>770,500</i>	<i>94</i>	<i>139</i>	<i>181</i>
Algeria	131,200	353,000	248,500	491,600	37	53	27
Libya	* 55,100	88,200	54,200	60,400	62	102	91
French Morocco	* 176,400	* 198,400	204,100	239,600	89	86	74
Tunisia	661,400	1,102,300	1,080,300	782,600	60	61	85
<i>Total Africa</i>	<i>1,024,100</i>	<i>1,741,900</i>	<i>1,587,100</i>	<i>1,574,200</i>	<i>59</i>	<i>65</i>	<i>65</i>
WORLD PRODUCTION OF OLIVE-OIL.	16,069,300	24,199,100	18,347,700	19,066,100	66	88	84

*) Rough unofficial estimate. — 1) Data not available. — 2) Data calculated on the basis of olive production. — 3) Rounded total.

The various official estimates and reports received by the International Institute of Agriculture enable it to make the following summary of the results of the 1938-39 season in the various countries.

In *Spain* production, according to unofficial estimates, is put at 7 million centals (94 million American gallons), which is lower than last year and the average and barely sufficient for internal requirements. Blossoming was irre-

gular and the lack of rain during the summer months did serious damage in a number of districts. Of the 37 olive-growing provinces in Spain (there are 50 provinces in all, but 13 produce practically no olives); 25 now are under the control of the Nationalist forces while 12 are in the hands of the Republican authorities. Taking the figures of production by Provinces, compared with the average of 1931-32 to 1935-36, which is the last year for which official statistics are available, it is estimated that the 25 Nationalist Provinces produce on the average two-thirds of total production in Spain. Consequently, if the estimate of this season's production is approximately accurate, 4.6 million centals (62 million American gallons) are at the disposition of the Nationalist authorities, not taking into account any stocks from old crops, while 2.3 million centals (31 million American gallons) are in the hands of the Republican authorities.

In *Italy* the persistent drought of July seriously affected olive trees, which had begun the season rather late owing to the cold weather of March, but were on the whole in good condition. Shedding in the first half of August was heavier than usual and considerably reduced crop forecasts. Attacks of *Cycloconium*, *Stictis panizzei*, *Antennaria elaeophila* and tuberculosis were particularly widespread in some districts and insect pests also did some damage. In November the ripening of olives was late in several areas. The quality of the crop however is estimated as good on the whole and the oil yield is expected to be average. The first official estimate gives a total production of olives of 23.1 million centals (1.2 million short tons), which is 38 per cent. less than the very large crop of 1937-38 (the biggest crop of the last decade except for that of 1929-30) and 14 per cent. below the average. Of the most important olivicultural areas the production is much below the average in Apulia (6.6 million centals or 0.3 million short tons in 1938-39 against an average for 1933-34 to 1937-38 of 8.6 million centals or 0.4 million short tons), in Calabria (1.8 or 0.1 million against 4.2 or 0.2) and in Sicily (2.0 or 0.1 million against 3.5 or 0.2). On the other hand, production was above the average in Tuscany (2.4 million centals or 0.1 million short tons against 2.2 or 0.1), and was particularly high in Liguria, where production reached 2.9 or 0.1 against an average of 1.5 or 0.1. The production of table olives is not yet known, but is likely to approximate to 220,000 centals (11,000 short tons). Reducing then this approximate quantity from the total olive production of the present season and assuming an oil yield of 16 per cent., which is the average yield of the last five seasons, the present estimate of oil production in Italy amounts to about 3.7 million centals (50 million American gals.). This figure has been inserted in the table as a provisional estimate until the official figure, which will shortly be issued, has been received.

In *Greece* also, as in Italy, the severe summer drought spoilt the olive season, which began favourably; the spring weather in fact was good for the growth and flowering of olives. In August and up to the middle of September the trees suffered from drought, which caused shedding. The rains of October only partially improved the situation, which was already beyond repair. The damage done by disease and insects does not appear to have been any worse than usual. Oil

production, according to an unofficial estimate, is reported, however, as very low, being less than half the extremely large outturn of 1937-38 and considerably below the average. The production of table olives, which is most important in Central Greece, Euboea and Thessaly, where together on the average about 70 per cent. of the total, is produced, is estimated this year at barely 515,000 centals (26,000 short tons). This figure, is only 26 per cent. of the 1937-38 crop and 82 per cent. of the average. At the end of last October the Greek Government decided to abolish the tax on the production of olive-oil for consumption in order to encourage production and export.

In *Portugal* there was a very poor crop. Official statistics have not yet been published, but production is generally agreed to be very much below the average. The season in fact, was very unfavourable. In the spring and summer, olive trees lost a large proportion of their blossom, particularly as the result of drought, which, with the very high temperatures, later caused shedding of the fruit. Rain in September and October partially improved fruit formation and checked shedding. The crop is very variable from one district to another. In the south and particularly in the Beja district flies did serious damage. Crop condition in the north, where the rainfall is normally very high, was on the whole better than in other parts of the country, particularly at Villa Real and Bragança, but even there it was below normal. In the centre, which contains the most important olivicultural districts (Estremadura and Beira alone possess 60 per cent. of the total number of olive trees in Portugal) the condition of crops in the last few months with very few exceptions has been very bad, particularly at Leiria, Santarém and Coimbra. In the South the season was also unfavourable, particularly in the coastal district of Faro, but was better at Évora and Setúbal.

The season in *France* opened very well with an excellent bloom. But the summer weather was fairly unfavourable and olives suffered considerable losses. On the whole however, results are considered satisfactory and it is estimated that the olive crop is approximately 1,100,000 centals (55,000 short tons) which is above the average. Picking was favoured by the weather and took place in good conditions. Some damage was done in Corsica and on the Mediterranean coast by flies, while in the interior round Vaucluse and Drôme there were attacks of tuberculosis. In Var and Gard, which are the two most important olivicultural *départements* of France, the season was fairly successful. Aggregate oil production, estimated from the production of olives and an average yield, is considered as good and better than last year or the average.

In *Yugoslavia* total production is estimated at 50 per cent. less than the very abundant outturn of last year but is only slightly below the average. In this country also a drought persisted during growth and the season was unfavourable during maturation, so that yields were heavily reduced. In Savska, which is of little importance in olive production, production is very poor. In the Provinces of Primorska and Zetska (olivicultural areas of Biogradoski, Šibenicki and Dubrovački) results are expected to vary from average to rather below average.

Among the more important Asiatic countries, *Turkey* obtained a fairly plentiful crop rather larger than that of last year and the average. The course

of the season, except for some local damage caused by vegetal parasites and insects, was good in the important producing areas of Mugla, Aydin and Denizli. It was less favourable in the south (Antalya, Isel) where production was light. Good yields were obtained also in Balikesir which, together with the Bursa district, is one of the most important areas of production of olives for direct consumption.

In *Syria and Lebanon*, the season was favourable up to the end of June and growth was good at that date; flowering also occurred in good conditions. The summer, however, was very dry and caused considerable damage. Oil production is estimated to be slightly above average but much below the very heavy crop of 1937-38.

The year gave very satisfactory results in *Palestine*. Favoured by adequate moisture supplies, fruiting was normal. Oil production is estimated to be good and even larger than the plentiful outturn of last year and the average. In the *Italian Aegean Islands* (Rodi and Coo) the climate was fairly good but the high winds, typical of these islands, did some damage. In *Cyprus* flowering and fruiting was almost normal but there was fly damage.

The French possessions in North Africa obtained light, below average crops on the whole.

In *Algeria*, the year 1938-39 began badly. In July very hot and dry weather caused considerable shedding. Rain brought a slight improvement in November but the lack of rainfall in October and the high temperatures caused further damage. There was a spread of fly infestation, particularly near the coast. In all, the production of olives, including those for direct consumption, large quantities of which are grown in Oran and Alger, is estimated to be less than 1,100,000 centals (55,000 short tons) compared with an average of more than double this quantity. The crop was particularly poor in Kabylie and in the important Tizi-Ouzou area. Quality is considered mediocre.

The situation in *French Morocco* was no better. Poor fruiting followed excellent flowering. Fly caused appreciable damage and the olives were expected to be of poor quality, especially on native lands where nearly all the Moroccan olive groves are situated. In both Fez and Marrakesh, which are the chief areas, the crop is estimated to be light and below average.

In *Tunisia* the crop was barely mediocre owing to winds and lack of moisture. In the north (Tunis and Bizerta) and on the High Plateaux (Kef) ripening was hindered by drought and excessively high temperatures; there was heavy shedding. In the Sahel area (Sousse) tuberculosis was especially severe. In Sfax, a highly important olive area, fruit was small; parasite infestation was comparatively light but, owing to the winds of the end of October, shedding of fruit was heavy, especially on trees affected by drought. Olive results in Tunisia are thus meagre and below the good outturn of last year and the average.

The following indications as available on the two American countries, *Argentina* and the *United States*, where olive growing is of some importance. The crop gathered in Argentina last May gave rather poor results in the Andine regions. The low yields were the result of wind damage and insufficient rain. However

the crop was estimated to be heavier than that of the preceding year because the new plantations are now bearing. There has been an appreciable expansion in plantings in recent years in the Andine region. The condition of olive trees in December varied from average to good. In the United States, the condition of the trees in autumn pointed to a heavy crop. Flowering was good and, on the whole, not affected by adverse factors. The production of California (representing practically the entire production of the country) is this year much above the average. It is now estimated at 800,000 centals (40,000 short tons) against 560,000 centals (28,000 short tons) in 1937-38 and an average of 451,000 centals (22,500 short tons); percentages, 142.9 and 177.5.

On the basis of the information received by the Institute from Governments and from other sources, world production of olive oil in 1938-39 is estimated at 16.1 million centals (214.3 million American gallons) composed of 13.6 (181.8) millions in Europe, 1.4 (18.6) millions in Asia and 1.0 (13.7) millions in Africa. Production was 24.2 (322.7) millions in 1937-38, 18.3 (244.6 millions) in the period 1932-33 to 1936-37 and 19.1 (254.2) millions in the period 1927-28 to 1931-32. The 1938-39 outturn thus shows a decrease of 34 per cent. from that of the previous year, of 12 per cent. from the 1932-33/1936-37 average and of 16 per cent. from the 1927-28/1931-32 average.

M. COSTA.

Current information on flax.

Argentina: The weather conditions of December were generally favourable for threshing and for the growth of late crops, which were in average condition at the beginning of January.

United States: The 1938 linseed crop, at 4,576,000 centals (8,171,000 bushels) is 15.3 per cent. larger than the 1937 crop but 6.9 per cent. below the 1932-36 average and considerably smaller than the average of earlier years. The yield per harvested acre of 4.8 centals (8.6 bushels) is the highest since 1927 and was above the 1927-1936 average in all States except Michigan. The 1937 yield was exceeded in all States except North Dakota. Drought and insects lowered yields in the Dakotas from earlier prospects. The loss from frost was negligible and the extended growing season resulted in improved quality.

Uruguay: The harvesting of linseed was proceeding in good conditions at the beginning of January. There were some reports of insect damage but, according to the first official estimate, linseed production this year was very plentiful, exceeding the crop of 1937-38 by more than one third and the average of the preceding five years by 82.3 per cent.

India: The first estimate of the area under linseed in 1939 is 3,094,000 acres against the corresponding estimate of 2,948,000 acres in 1938 and the corresponding average of 2,572,000 acres in 1933 to 1937; percentages, 105.0 and 120.3.

Area and production of flax.

COUNTRIES	†) AREA					†) PRODUCTION							
	1938 and 1938/39	1937 and 1937/38	Aver. 1932 to 1936 and 1932/33 to 1936/37	% 1938 and 1938/39		1938 and 1938/39	1937 and 1937/38	Aver. 1932 to 1936 and 1932/33 to 1936/37	1938 and 1938/39	1937 and 1937/38	Aver. 1932 to 1936 and 1932/33 to 1936/37	% 1938 and 1938/39	
	1,000 acres			= 100	= 100	1,000 centals			1,000 pounds			= 100	Aver. 1937/ 1938 = 100
<i>Fibre.</i>													
Germany . . .	111.2 ¹⁾	151.2 ²⁾	50	—	—	643.2 ³⁾	766.2 ⁴⁾	354 ⁵⁾	64,335 ⁶⁾	76,635 ⁷⁾	35,412 ⁸⁾	—	—
*Belgium . . .	77	69	40	111.0	191.1	524	280	...	52,430	28,049	...	...	...
Bulgaria . . .	10	10	3	98.8	289.6	9	14	4	939	1,408	440	66.7	213.2
Estonia . . .	58	77	55	74.9	106.6	168	226	155	16,798	22,643	15,544	74.2	108.1
*Finland 4) . . .	8	8	11	99.0	74.0	...	23	36	2,278	3,552	...	...	...
France . . .	101	69	59	146.3	170.0	518	418	332	51,767	41,749	33,250	124.0	155.7
Hungary . . .	9	9 ⁵⁾	8	94.2	112.9	37	37 ⁶⁾	29	3,715	3,692 ⁷⁾	2,886	100.6	128.7
Ireland . . .	4	4	3	92.3	144.4	18	19	12	1,814	1,859	1,203	97.6	150.8
Italy . . .	17	15	10	112.1	120.2	80	63	48	7,974	6,281	4,813	127.0	165.7
Latvia . . .	160	171	126	93.9	127.5	484	510	359	48,392	50,971	35,878	94.9	134.9
Lithuania 4) . . .	192	218	160	88.2	120.3	578	691	511	57,786	69,082	51,100	83.6	113.1
Netherlands . . .	50	43	18	115.9	283.5	376	320	139	37,602	32,047	13,941	117.3	269.7
*Poland . . .	365	360	273	101.5	134.0	...	840	706	...	84,014	70,596	...	...
*Romania . . .	...	53	62	...	...	...	192	180	...	19,180	17,996	...	...
Un. Kingd.: . .													
*North. Ir. . .	21	19	17	107.5	121.2	...	94	85	...	9,379	8,476	...	...
*Czecho-Slovak. .	40	48	26	82.7	150.3	...	244	127	...	24,361	12,674	...	...
*Yugoslavia . . .	...	34	30	...	...	...	244	234	...	24,402	23,426	...	...
Total Europe . .	712	767	492	92.9	145.5	2,911	3,064	1,943	291,122	306,367	194,467	95.1	149.5
*U. S. S. R. 6) .	4,543 ⁷⁾	5,109	5,570	88.9	81.6	...	11,200	11,729	...	1,119,952	1,172,894	...	...
Egypt . . .	9	6	4	143.4	209.9	71	44	28	7,072	4,421	2,849	160.0	248.3
TOTALS . . .	721	773	496	93.3	146.0	2,982	3,108	1,971	298,194	310,788	197,316	96.0	150.9
<i>Linseed.</i>													
Germany . . .	111.2 ¹⁾	151.2 ²⁾	50	—	—	502.2 ³⁾	923.2 ⁴⁾	334.1 ⁵⁾	897.2 ⁶⁾	1,648.2 ⁷⁾	597	—	—
*Belgium . . .	77	69	40	111.0	191.1	...	302	225	...	539	403	...	...
Bulgaria . . .	10	10	3	98.8	289.6	25	37	16	45	67	29	67.1	156.8
Estonia . . .	58	77	55	74.9	106.6	196	222	168	350	396	299	88.5	117.0
*France . . .	101	69	59	146.3	170.0	...	...	239	...	...	427	...	...
Hungary . . .	19	16 ⁵⁾	23	119.0	84.4	143	98 ⁶⁾	118	255	176 ⁷⁾	210	144.9	121.4
Italy . . .	27	20	12	134.2	230.7	147	113	59	263	201	106	130.6	247.5
Latvia . . .	160	171	126	93.9	127.5	454	493	333	811	880	594	92.1	136.5
Lithuania 4) . .	192	218	160	88.2	120.3	662	785	608	1,182	1,401	1,085	84.4	108.9
*Netherlands . .	50	43	18	115.9	283.5	...	275	121	...	491	216	...	...
*Poland . . .	365	360	273	101.5	134.0	...	1,660	1,255	...	2,964	2,241	...	...
*Romania . . .	...	53	62	...	...	...	161	240	...	287	429	...	...
*Czecho-Slovak. .	40	48	26	82.7	150.3	...	199	99	...	356	176	...	...
*Yugoslavia . . .	...	...	...	...	...	...	29	23	...	52	40	...	...
Total Europe . .	577	663	429	87.3	135.3	2,129	2,671	1,636	3,803	4,769	2,920	79.7	130.2
*U. S. S. R. 9) .	5,605 ⁷⁾	6,002	6,386	93.4	87.8	...	...	16,359	...	...	29,213	...	...
Canada . . .	221	241	343	91.7	64.5	778	391	865	1,389	698	1,545	199.1	89.9
United States . .	954	934	1,509	102.1	63.2	4,576	3,970	4,913	8,171	7,089	8,774	115.3	93.1
Total N. Am. . .	1,175	1,175	1,852	100.0	63.5	5,354	4,361	5,778	9,560	7,787	10,319	122.8	92.7
India . . .	3,839	3,677	3,356	104.4	114.4	10,237	9,408	9,005	18,280	16,800	16,080	108.8	113.7
Egypt . . .	9	6	4	143.4	209.9	62	45	33	110	81	58	136.1	190.0
Ital. East. Afr.: .													
*Eritrea . . .	...	11	6	...	...	...	41	26	...	73	46	...	...
Fr. Morocco . .	56	57	40	97.2	140.1	112	223	161	201	398	288	50.4	69.7
Total N. Afr. . .	65	63	44	103.8	150.0	174	268	194	311	479	346	64.8	89.8
Argentina . . .	6,608 ¹²⁾	7,023 ¹³⁾	7,274	94.1	90.8	35,715	33,938	38,077	63,777	60,604	67,994	105.2	93.8
Uruguay . . .	455	332	333	137.0	136.6	2,815	2,088	1,544	5,027	3,728	2,758	134.8	182.3
TOTALS . . .	12,719	12,933	13,288	98.4	95.7	56,424	52,734	56,234	100,758	94,167	100,417	107.0	100.3

†) The years indicated are those of the harvest, single years referring to the Northern Hemisphere, double years to the Southern. — *) Not included in the total. — 1) Not including Austria. — 2) Including Austria. — 3) Average 1933 to 1936. — 4) Flax and hemp. — 5) Average 1934 to 1936. — 6) "Dolgunez" variety. — 7) Area according to the plan. — 8) On September 1, the flax on 95 per cent. of the area provided for in the Plan had been pulled. — 9) "Dolgunez" and "Koudriache" varieties. — 10) Average 1932 to 1935. — 11) Including Tigris. — 12) Area sown.

Current information on cotton.

Greece: The hot and rather dry weather of the first half of November was favourable for the picking of cotton in early plantations. On late plantations the unfavourable weather of the last decade of November hampered cotton picking and even damaged crops to some extent.

Argentina: Cotton sowings, favoured by the weather, were effected in good conditions in the Chaco and Formosa in December. In Corrientes, Santiago and the

Area and production of cotton.

COUNTRIES	AREA					PRODUCTION OF GINNED COTTON							
	1938/39	1937/38	Average 1932/33 to 1936/37	% 1938/39		1938/ 1939	1937/ 1938	Average 1932/33 to 1936/37	1938/ 1939	1937/ 1938	Average 1932/33 to 1936/37	% 1938/39	
				1937/ 1938	Average age							1937/ 1938	Average age
			= 100	= 100									
1,000 acres					1,000 centals			1,000 bales of 478 lb.					
Bulgaria	143	125	57	115.1	250.7	167	197	98	35	41	21	85.0	169.7
Greece	187	181	95	103.1	195.7	322	368	189	67	77	39	87.6	170.9
Italy	91	54	10	167.5	902.6	209	93	19	44	20	4	224.4	1080.4
Romania . . . . .	...	4	3	...	...	...	11	3	...	2	1	...	...
Yugoslavia . . . . .	...	7	3	...	...	...	15	4	...	3	1	...	...
U. S. S. R.	5,108	5,163	5,017	98.9	101.8	...	18,078	10,948	..	3,782	2,290	...	...
United States 1) .	25,346	34,001	29,962	74.5	84.6	57,398	90,557	56,139	12,008	18,945	11,745	63.4	102.2
Br. West Indies .	...	22	14	...	...	...	25	15	...	5	3	...	...
Mexico . . . . .	...	829	495	...	...	...	1,625	1,177	...	340	246	...	...
Argentina	1,018	1,048	691	97.2	147.3	...	1,134	1,111	...	237	232	...	...
Burma	549	501	454	109.7	120.9	...	605	382	...	127	80	...	...
Cyprus . . . . .	...	12	9	...	...	...	17	9	...	4	2	...	...
Chosen	576	548	475	105.2	121.5	929	1,017	773	194	213	162	91.3	120.2
India 2)	23,049	24,253	22,456	95.0	102.6	19,188	22,012	19,064	4,014	4,605	3,988	87.2	100.7
do 3) . . . . .	...	25,583	23,920	...	...	...	22,652	21,116	...	4,739	4,418	...	...
Iraq . . . . .	...	65	26	...	...	...	81	13	...	17	3	...	...
Syria	92	86	51	106.4	178.2	192	123	76	40	26	16	155.9	251.9
Turkey	483	792	478	60.9	101.0	540	986	834	113	206	175	54.8	64.7
Egypt	1,852	2,053	1,664	90.2	111.3	7,280	10,904	7,672	1,523	2,281	1,605	66.8	94.9
Kenya	—	—	—	—	—	...	74	47	...	15	10	...	...
Nyasaland . . . . .	...	...	54	...	...	50	40	38	10	8	8	125.0	130.5
Uganda	1,493	1,759	1,240	84.9	120.4	1,300	1,668	1,190	272	349	249	77.9	109.2
Anglo-Eg. Sudan .	458	443	379	103.4	120.9	...	1,261	919	...	264	192	...	...
Tanganyika 4) . .	—	—	—	—	—	188	258	158	39	54	33	73.0	119.6

1) See: *Summary of Government Cotton Reports*. — 2) Third report, relating to conditions up to the beginning of December, in the entire cotton area of India. — 3) Final estimates. — 4) Exports.

National Mission Territory, however, weather was rather unfavourable. Germination took place in excellent conditions, particularly in the Chaco and in the north of Santa Fé. In all parts of the cotton zone a reduction in the cultivated area is expected owing to the low prices on world markets.

Egypt: Cotton ginned up to the end of December, in bales of 478 lb. net weight, was as follows:—

Varieties	1938	1937	1936	1935	1934	1933	1932
Sakellaridis	—	65,381	80,000	129,395	117,929	142,484	158,826
Giza 7	240,898	324,212	285,664	193,043	112,080	73,152	25 105
Other varieties above:							
I ^{3/8}	(1) 92,156	398,261	351,163	261,313	148,256	140,086	75,883
I ^{1/4}	28,644	21,955	20,787	31,632	28,591	52,854	52,883
I ^{1/8}	687,341	848,112	926,555	872,030	732,788	807,968	400,124
Total	1,049,039	1,333,709	1,378,514	1,294,370	1,027,564	1,143,392	687,716
Scario	19,633	22,365	28,243	27,194	20,894	22,830	15,991
Total production (including Scario)	(*) 1,523,000	2,281,223	1,887,164	1,768,581	1,565,583	1,776,908	1,026,977

(*) Second estimate. — (1) Including Sakellaridis.

Uganda: Owing to the early advent of the dry season in the Eastern and Northern Provinces, the later plantings were adversely affected in November, but early plantings promised average yields. Picking had begun in most districts and quality was satisfactory. In the Buganda and Western Provinces and in Bunyoro district of the Northern Province weather conditions were in general favourable and crop prospects were maintained during November. (See the first estimate for Uganda cotton crop, in the General Table).

Current information on hemp.

Area and production of hemp.

COUNTRIES	AREA					PRODUCTION				
	1938	1937	Average 1932 to 1936	% 1938		1938	1937	Average 1932 to 1936	% 1938	
				1937	Aver- age				1937	Aver- age
1,000 acres			= 100	= 100	1,000 pounds			= 100	= 100	

Fibre.

Germany 1)	31	19	5	168.0	620.1	25,953	15,313	2) 9,083	169.5	285.7
Bulgaria	23	20	14	113.7	164.1	8,404	8,448	5,814	99.5	144.5
France	9	9	7	98.3	126.5	11,162	9,776	7,040	114.2	158.6
Italy	225	214	156	104.9	143.6	239,487	239,196	144,722	100.1	165.5
Poland	83	85	81	97.4	101.7	...	25,397	24,352	...	...
Romania . . . . .	...	126	118	...	...	...	59,525	56,670	...	...
Czechoslovakia	18	18	19	101.1	96.9	...	10,694	12,709	...	...
Yugoslavia . . . . .	...	139	95	...	...	...	110,048	77,705	...	...
U.S.S.R.	3) 1,413	3) 1,511	1,740	93.5	81.2	—	—	—	—	—
Syria & Lebanon . . . . .	...	16	6	...	...	...	10,507	3,482	...	...

Hempseed.

Germany 1)	31	19	5	168.0	620.1	17,417	11,089	2) 5,956	157.1	292.4
Bulgaria	23	20	14	113.7	164.1	5,196	9,714	4,297	53.5	120.9
France	9	9	7	98.3	126.5	...	...	1,894	...	...
Italy	—	—	—	—	—	6,221	6,054	5,455	102.8	114.0
Poland	83	85	81	97.4	101.7	...	41,350	38,168	...	...
Romania . . . . .	...	126	118	...	...	...	51,588	44,033	...	...
Czechoslovakia	18	18	19	101.1	96.9	...	7,477	8,374	...	...
Yugoslavia	—	—	—	—	—	...	9,901	3,858	...	...
Manchukuo . . . . .	...	150	2) 152	...	...	70,420	79,755	2) 88,783	88.3	79.3

1) Not including Austria. — 2) Average 1935 and 1936. — 3) Area forecast by the Plan.

Current information on hops.

United States: Hop production in 1938 is estimated at 35,261,000 lb. of which 3,140,000 lb. was unpicked owing to market conditions and the *Agricultural Adjustment Administration* marketing agreement quotas. The yield per acre was 1,119 lb. compared with a ten-year average of 1,195 lb. per acre.

The growing season in Washington was for the most part favourable but in Oregon the yields were reduced by intermittent hot and dry weather. Yields in the coastal counties of California were lower than had been anticipated and shrinkage in drying was heavy.

Area and production of hops.

COUNTRIES	AREA					PRODUCTION				
	1938	1937	Average 1932 to 1936	% 1938		1938	1937	Average 1932 to 1936	% 1938	
				1937	Aver- age				1937	Aver- age
1,000 acres			= 100	= 100	1,000 pounds			= 100	= 100	
Germany 1)	21.0	22.8	23.6	92.2	89.1	...	22,656	16,309	...	...
Belgium	1.8	2.1	2.0	87.0	93.9	...	2,663	2,329	...	...
France	4.2	4.3	4.6	98.9	93.0	4,495	5,182	3,940	86.7	114.1
Hungary . . . . .	...	0.2	0.3	...	...	...	126	151	...	...
Poland	8.5	8.8	6.7	96.7	127.1	...	3,326	3,430	...	...
Romania . . . . .	...	0.2	0.1	...	...	...	88	29	...	...
United Kingdom:										
Engl. and Wales.	18.5	18.1	17.6	102.2	105.0	28,784	26,320	26,051	109.4	110.5
Czecho-Slovakia .	28.7	28.5	27.7	100.6	103.8	...	26,819	17,886	...	...
Yugoslavia . . . .	...	7.1	5.4	...	...	...	4,701	2,341	...	...
—										
Canada . . . . .	...	1.1	1.0	...	...	...	1,510	1,409	...	...
United States . . .	31.5	34.3	31.8	91.8	99.1	35,261	43,913	36,247	80.3	97.3

1) Not including Austria.

Current information on tobacco.

Argentina: The crop condition of tobacco in December was generally satisfactory except in the province of Catamarca where growth was restricted by drought. Transplanting was effected in good condition.

United States: The definitive December estimates of harvested area and production of tobacco in 1938 compared with 1937 are as follows:—

CLASSIFICATION	Area thousand acres		% 1938 —	Production thousand pounds		% 1938 —
	1938	1937	1937 = 100	1938	1937	1937 = 100
Flue-cured	893.0	973.3	91.7	788,060	854,882	92.2
Fire cured	125.0	144.4	86.5	99,763	119,791	83.3
Air-cured, light	472.1	478.8	98.6	416,913	425,782	97.9
Air-cured, dark	45.2	52.9	85.5	37,863	47,400	79.9
Cigar filler	39.0	40.1	97.5	46,912	45,014	104.2
Cigar binder	41.9	35.6	118.1	57,429	51,224	112.1
Cigar wrapper	10.5	10.0	105.0	9,030	8,508	106.1
TOTAL	1,626.7	1,735.1	93.8	1,455,970	1,552,601	93.8

Cyprus: A report for November; states that, owing to the uncertainty of tobacco sales, the baling of the 1938 crop was delayed, although the weather was favourable. The preparation of seed-beds for the 1939 crop had been started by the end of the month.

Area and production of tobacco.

COUNTRIES	AREA					PRODUCTION				
	1938 and 1938/39	1937 and 1937/38	Average 1932 to 1936 and 1932/33 to 1936/37	% 1938 and 1938/39		1938 and 1938/39	1937 and 1937/38	Average 1932 to 1936 and 1932/33 to 1936/37	% 1938 and 1938/39	
				1937 and 1937/38	Aver- age				1937 and 1937/38	Aver- age
	1,000 acres			= 100	= 100	1,000 pounds			= 100	= 100
Albania . . . . .	...	5	4	...	...	...	3,307	3,076	...	...
Germany 1)	33	32	30	102.9	109.8	2) 73,855	68,343	70,292	108.1	105.1
Belgium	5	6	7	85.4	74.9	...	12,630	14,894	...	...
Bulgaria	89	96	73	92.7	122.1	...	69,055	58,528	54.8	64.6
France . . . . .	...	45	44	...	...	...	68,770	76,333	...	...
Greece	202	226	200	89.4	101.0	...	141,441	111,530	60.1	76.2
Hungary	33	36	44	93.0	75.5	...	45,008	55,459	97.4	79.1
Italy	81	79	87	102.6	93.5	...	94,631	98,897	96.1	92.0
Poland . . . . .	...	17	13	...	...	...	30,035	19,595	...	...
Romania . . . . .	...	35	33	...	...	...	22,708	20,886	...	...
Switzerland . . . . .	...	1	1	...	...	...	2,379	2,149	...	...
Czecho-Slovakia	23	24	24	96.6	95.0	...	30,944	31,407	...	...
Yugoslavia . . . . .	...	51	35	...	...	...	45,818	25,394	...	...
U. S. S. R.	3) 504	3) 503	511	100.1	98.6	...	...	4) 413,649	...	...
Canada	83	69	49	120.8	171.1	85,142	71,459	47,643	119.1	178.7
Cuba	112	122	106	91.8	105.4	55,321	55,398	40,593	99.9	136.3
United States	1,627	1,735	1,459	93.8	111.5	1,455,970	1,552,601	1,184,512	93.8	122.9
Mexico . . . . .	...	...	35	...	...	20,283	25,353	26,230	80.0	77.3
Burma	96	99	97	96.8	99.1	...	98,560	95,872	...	...
Chosen	48	45	37	105.5	129.0	57,869	58,398	41,894	99.1	138.1
India . . . . .	...	1,214	1,208	...	...	...	1,120,000	1,308,608	...	...
Iran . . . . .	...	25	28	...	...	...	35,128	36,721	...	...
Japan	92	85	85	107.2	107.9	144,602	142,375	142,342	101.6	101.6
Palestine . . . . .	...	14	5	...	...	...	5,227	1,869	...	...
Syria and Lebanon . . . . .	...	15	...	...	...	...	11,418	7,253	...	...
Transjordan . . . . .	...	2	...	...	...	...	1,218	649	...	...
Turkey . . . . .	...	233	132	...	...	134,908	140,886	87,801	95.8	153.6
Algeria	59	59	54	100.0	108.4	35,274	38,877	39,737	90.7	88.8
Argentina	29	31	37	93.2	77.7	17,224	23,114	32,605	74.5	52.8
Nyasaland 5) . . . . .	...	42	40	...	...	...	17,450	15,235	...	...
Australia . . . . .	...	12	15	...	...	...	6,500	5,588	...	...
New Zealand . . . . .	...	3	2	...	...	...	2,250	1,392	...	...

1) Production for sale. — 2) Data published by „Reichsnährstand“. — 3) Figure established from the Plan. — 4) Average 1932, 1933, 1934 and 1936. — 5) European and native crops.

Algeria: It is confirmed that the tobacco crop is smaller than last year. In December sowing on seed-beds was carried out in nurseries in the Constantine. The rather mild weather at first favoured growth. But later a cold spell checked development and the seedlings had to be protected.

Nyasaland: According to the last report, in most Native Trust Lands tobacco had shown good growth, such slight insect attacks as had occurred having been successfully treated. In the Northern Provinces the emigration of many of the growers had resulted in seed-beds being tended by women and children, and numerous cases of unduly thick sowing had occurred. In the Central Province the preparation of the fields had been held up by lack of rains.

Southern Rhodesia: According to the November Report on Agricultural Conditions in Southern Rhodesia, planting rains had not become general by the end of November. Some rain fell in the middle of the month and a moderate acreage was accordingly planted out. Transplanting was resumed during the last few days of the month and, although in many cases seedlings were overgrown and had to be discarded, no immediate shortage was reported. Where necessary old seed beds were re-sown.

Current information on other products.

Cacao.

Grenada: Heavy rains fell in November and it was feared that the cacao crop would be adversely affected.

Trinidad: It was reported in November that the new cacao crop had been affected by the excessive rains.

Gold Coast and Togoland under British Mandate: MAIN CROP 1938-39. — It was reported in November that although the rate of marketing showed a considerable increase since the issue of the previous report, it was still below normal for the time of year. Current prices were reputed to have a retarding effect on movement. It was stated that if low prices continued they might tend to affect the quantity of cacao marketed from distant areas. A summary of marketing since the beginning of the season is given below.

	Sept.	Oct.	Nov.
	(million lb.)		
Total stocks and months	33	48	110
Increase during month	—	15	62
Exports during month	—	21	36
Total marketed during month	—	36	98
Old crop marketed	—	2	—
New crop marketed.	4	34	98
Total marketed since the beginning of the season —	—	38	136

It was estimated that 67 per cent. of the crop was ripe by the end of November and that 85 per cent. would be ripe by the end of December. The quantity harvested by the end of November was estimated to be 45 per cent., of which 23 ½ marketed up to the end of the month and 21 ½ in farmers' hands. On an estimated crop of 560 million lb. the 23 ½ per cent. marketed is equivalent to 132 million lb., which is not much different from the estimate of 136 million lb. computed from stocks and export figures.

Rainfall (5.98 inches) and number of wet days (14.7 in November) show marked increases, being 1.22 inches and 3.2 wet days respectively above the ten year mean. These conditions have been favourable for growth but unsuitable for harvesting, fermenting and drying. Slate continued to be a predominant defect and under-fermentation was still apparent owing to unfavourable weather conditions. As foreshadowed in previous reports the percentage of germinated beans is above average.

The result of sampling farmers' cacao in 300 villages throughout the cacao areas gave a mean purity of 91.7 per cent. and showed that about 61 per cent. of the lots were grade I, 34 per cent. were grade II and 4 per cent. grade III. A few lots, totalling less than 1 per cent. were found to be sub-grade, proving that there were still a few lots of old crop held by farmers. The original sampling carried out by licensed Graders and Inspectors showed 64 per cent. of grade I, 36 per cent. of grade II and a negligible quantity of grade III.

The check sampling of 43.7 million lb. of cacao at the time of export gave 58 per cent. of grade I, 39 per cent. of grade II and 3 per cent. of grade III.

The sixth meeting of the Cacao Crop Estimates Committee was held in Accra on December 9 1938 and it was decided that no change should at present be made in the estimate, already published, for the 1938-39 main crop.

MOVEMENT. — Movement statistics for November are as follows:

	November 1938	November 1937
	(million pounds)	
Railway off-loadings, Takoradi	31.2	14.0
<i>Exports:—</i>		
Takoradi	10.5	11.3
Accra	18.8	15.7
Other ports	4.5	3.6
<i>All ports</i>	<i>33.8</i>	<i>30.6</i>
Eastern Frontier	1.8	1.7
<i>Total exports</i>	<i>35.6</i>	<i>32.3</i>

Tea.

India: In North India weather in November was cold and seasonable; plucking was practically over. To the end of that month there was an increase of 18,513,000 lb. on the outturn to the same date last season.

In South India there were indications that the dry weather had definitely set in and crop prospects were normal for the time of year; outturn was 13.1 per cent. ahead of that to the same date last year.

Indochina: In October the growth of tea shrubs was normal in Annam and Tonkin. Crops were small in Tonkin on pruned and unpruned plantations. Harvesting by planters is finished.

Nyasaland: It was reported in November that tea crops had been adversely affected by delayed rains and that production would not be up to expectations.

Coffee.

Brazil: The amount of coffee destroyed since 1931 to the end of December 1938 now totals 85,460,000 centals, of which 3,924,000 were destroyed in the first six months (July 1-December 31) of the present commercial season and 284,000 in December. Exportable stocks in Brazilian ports on December 31 1938 amounted to 4,623,000 centals, of which 3,122,000 were in the port of Santos.

Netherlands Guiana: The condition of coffee shrubs in November varied from poor to average.

Dominican Republic: The weather in November was very favourable for coffee picking. It is confirmed that the 1938-39 crop is large and of good quality.

Indochina: The harvesting of beans of the Arabica variety had begun in the first half of October in Tonkin.

Angola: Coffee crop prospects in the present season are average.

Kenya: As a result of good rains it was anticipated in November that there would be an improvement in the quality of later pickings of the coffee crop, which had suffered from the drought experienced during the middle of 1938.

Madagascar: The condition of coffee plantations on December 1 was good.

Nyasaland: In November harvesting of coffee was completed. The crop is very small owing to disease.

Tanganyika: During November frequent heavy showers fell in most districts. The bulk of the coffee crops in the Arusha Moshi and Bukoba districts were reported to have already been harvested.

Groundnuts.

Argentina: The weather in December was favourable for the last stages of groundnut sowing and for growth.

United States: The production of peanuts harvested as nuts in 1938 was 1,424,825,000 lb. which is the largest crop ever obtained. It is 7.9 per cent. larger than the 1,320,675,000 lb. obtained in 1937 and 23.4 per cent. above the 1932-36 average of 1,154,243,000 lb. The acreage harvested in 1938, estimated at 1,887,000 acres was 14.2 per cent. larger than that of 1937 and 12.9 per cent. above the average. Unfavourable weather conditions during the growing season resulted in below average yields in both the Virginia-Carolina and Southwestern areas but in the Southeastern area the yield was the highest on record.

Netherlands Indies: Java and Madura. — The Department of Agricultural Statistics of the Central Statistical Office communicates the following details of the groundnut area:—

	1938 acres	1937 acres
Area harvested in November	68,700	69,400
Area harvested from January 1 to November 30 .	594,100	536,000
Area of standing crops at the end of November. .	158,600	138,000

Indochina: The groundnut harvest was completed in October in Tonkin. Yields varied between 1,500 and 1,700 lb. per acre.

Nigeria: In December buying of new crop groundnuts was reported to be proceeding normally and the yield of the crop generally was said to be good.

Colza and sesame.

Poland: On December 15 1938 the crop condition of winter colza was 3.6 as on November 15 last, compared with 3.8 on December 15 1937.

India: The first estimate of the area under rape and mustard in 1939 is 2,722,000 acres against the corresponding estimate of 3,049,000 acres in 1938 and the corresponding average of 2,912,000 acres in 1933 to 1937; percentages, 89.3 and 93.5.

According to the final estimate; the area cultivated to sesame this year is 4,015,000 acres against the corresponding estimate of 4,201,000 in 1937-38 and the corresponding average of 4,286,000, in the five years ending 1936-37; percentages, 96.5 and 93.7. The corresponding estimates of production are 8,154,000 centals (407,700 short tons) against 9,744,000 (487,200) and 9,699,000 (485,000); percentages 83.7 and 84.1.

Current information on fodder crops.

Belgium: The condition of meadows and clover is very satisfactory.

Estonia: According to the latest estimate, the area of permanent meadows in 1938 is 2,165,000 acres against 2,186,000 in 1937 and an average 2,244,000 acres in 1932 to 1936; percentages, 99.0 and 96.5. The corresponding production is estimated at 21,028,200 centals (1,051,400 short tons) against 19,440,400 (972,000) and 18,353,600 (917,700); percentages 108.2 and 114.6.

The corresponding figures for rotation meadows are as follows:— area: 460,800 acres, 438,200 acres, 439,000 acres, 105.2 per cent. and 105.0. per cent; production: 14,903,000 centals (745,100 short tons), 11,570,000 centals (578,500 short tons), 10,222,200 centals (511,100 short tons), 128.8 per cent. and 145.8 per cent. For fodder roots and tubers:— area 26,100 acres, 24,000 acres, 20,100 acres, 109.0 per cent. and 130.2 per cent.; production 5,291,800 centals (264,600 short tons) 5,430,000 centals (271,500 short tons), 3,825,700 centals (191,300 short tons), 97.5 per cent. and 138.3 per cent.

France: Annual fodders, fodder cabbage, turnips, swedes, rape and mustard, which cover large areas this year in the west and southwest suffered especially from the severe cold and frost of the last decade of December.

Hungary: On January 11 it was forecast that fodder supplies would on the whole be adequate for winter feeding.

Ireland: The area under mangels in 1938 is estimated at 84,700 acres against 86,500 acres in 1937 and an average of 83,000 acres in 1932 to 1936; percentages, 97.9 and 102.2.

The area under turnips in 1938 is estimated at 143,200 acres against 149,000 acres in 1937 and an average of 161,700 acres in 1932 to 1936; percentages, 96.2 and 88.6.

Italy: In the first fortnight of December the average rainfall and the rather high temperature stimulated the growth of catch crops, pastures and meadows. But growth was checked in the second half of the month, particularly in North and Central Italy by severe cold and snow.

Latvia: There were adequate supplies of ordinary and concentrated feeds of satisfactory quality at the beginning of the year and the feeding outlook is better than last year's.

Poland: On December 15 the crop condition of clover was 3.2 and on November 15 last compared with 3.1 on December 15 1937.

United Kingdom: Winter keep was drawn on fairly heavily during the cold spell in December. Supplies should however be sufficient providing the winter is not unduly prolonged.

The harvesting of root crops was practically finished.

The production of hay from rotation meadows in Northern Ireland in 1938 is estimated at 7,709,000 centals (385,000 short tons) against 7,982,000 (399,000) in 1937 and an average of 7,645,000 (382,000) in 1932 to 1936; percentages, 96.6 and 100.8.

Corresponding figures for hay from permanent meadows in 1938 are 10,771,000 centals (539,000 short tons) against 10,686,000 (534,000) in 1937 and an average of 10,035,000 (502,000) in 1932 to 1936; percentages, 100.8 and 107.3.

Argentina: The drought of December did some damage to pastures.

United States: The December figures of the area and production of hay are as follows:

	1938	1937	Average 1932-1936	% 1938 1937 = 100	Average 1932-1936 = 100
<i>Area</i>					
(thousand acres)					
Tame hay	56,309	54,620	56,157	103.1	100.3
Wild hay	11,774	11,444	11,540	102.9	102.0
<i>Production</i>					
(thousand centals)					
Tame hay	1,605,980	1,468,980	1,341,204	109.3	119.7
Wild hay	208,880	183,360	173,196	113.9	120.6
(thousands short tons)					
Tame hay	80,299	73,449	67,060	109.3	119.7
Wild hay	10,444	9,168	8,660	113.9	120.6

Total hay production in 1938 was the largest for ten years and contrasts sharply with that of recent lean years. With a large carryover from 1937 supplies are now very large.

Algeria: Mixed vetches and oats for fodder and barley for green feed sprouted in good conditions. Sowing however is late and so far of limited extent, particularly in the case of bersim clover in Costantine. Rain freshened permanent meadows and pastures and grazings, but the cold weather to a great extent checked growth, which by mid-December had almost stopped and was very thin. Grasses made growth in the Saharan region as a result of the rain.

Egypt: Growth of bersim clover was good owing to the favourableness of the weather, and the first cutting is general. The second cutting was commenced in some localities. Watering and manuring of some cultivations were effected before the advent of the period of drought. Crop condition is normal.

Australia: The weather between the middle of December and the middle of January was extremely hot and dry throughout Australia and the outlook was serious for dairy farmers in all States, except Tasmania.

LIVESTOCK AND DERIVATIVES

Cattle and pig population in Denmark.

Cattle.

(Thousands).

CLASSIFICATION	31 December 1938	16 July 1938	31 December 1937	17 July 1937	2 January 1937	18 July 1936	28 December 1935	13 July 1935
Calves under 1 year . . .	832	833	791	764	798	785	796	782
Heifers 1 year and over. .	557	606	544	603	538	580	494	529
Cows which have calved, 2 years and over	1,625	1,601	1,590	1,573	1,601	1,610	1,658	1,648
Steers 1 year and over . .	70	80	79	80	70	68	51	51
Bull 1 year and over . .	66	63	63	64	65	64	64	63
<i>Total cattle . . .</i>	<i>3,150</i>	<i>3,183</i>	<i>3,067</i>	<i>3,084</i>	<i>3,072</i>	<i>3,107</i>	<i>3,063</i>	<i>3,072</i>

Pigs.

(Thousands)

CLASSIFICATION	1938									1937		
	31 Dec.	19 Nov.	8 Oct.	27 Aug.	16 July	18 June	7 May	26 March	12 Feb.	20 Nov.	9 Oct.	28 Aug.
Bears for breeding.	17	16	16	16	16	17	17	17	17	18	19	20
Sows in farrow for first time . . .	82	67	54	40	55	63	93	108	97	51	43	49
Othersows in farrow	143	147	156	160	155	145	132	126	142	139	130	148
Sows in milk . . .	72	68	72	78	82	89	81	84	60	65	83	91
Sows not yet cov- ered (and not for slaughter) .	23	24	25	26	24	23	21	16	15	24	29	29
Sows for slaughter.	9	13	14	11	10	9	9	8	8	16	22	14
Total of sows . . .	329	319	321	315	326	329	336	342	322	295	307	331
Sucking pigs not weaned	603	581	642	678	689	731	687	743	512	550	734	794
Young and adult pigs for slaugh- ter:												
Weaned pigs un- der 35 kg. . . .	639	676	706	726	717	698	677	566	590	839	848	811
Pigs of 35 and under 60 kg. . .	615	608	645	613	669	591	499	522	607	685	668	638
Fat pigs of 60 kg. and over . .	503	561	516	542	428	423	451	539	523	594	513	573
Total pigs . . .	2,706	2,761	2,846	2,890	2,845	2,795	2,667	2,729	2,571	2,981	3,089	3,167

Livestock in Estonia.

Thousands

Classification	1938	1937	1936	1935	1934	1933	1932	1931
Horses	219.0	209.1	215.9	217.8	211.5	209.9	208.2	206.8
Cattle	660.9	638.9	731.1	725.4	676.2	681.7	692.3	688.9
Sheep	649.7	650.5	584.0	593.1	552.1	541.4	514.4	478.5
Pigs	384.6	379.3	244.6	289.2	281.7	277.1	302.9	322.7

Dairy and honey production in Italy.

According to the industrial census of 1937, the following dairy and apicultural products were manufactured by factories in the year of the census:

Products	000 lb.
Butter	85,126
Cheese	372,692
Cream	23,966
<i>White ricotta cheese:</i>	
fresh	7,667
salted	1,374
Honey	769

Current information on livestock and derivatives.

France: Animals improved in condition in December. Foot-and-mouth disease is declining but many affected animals have not reached a normal condition. Except in parts of Normandy, animals have been brought indoors but the continued mildness made it possible to graze animals longer than usual.

Feed supplies were substantially economized and there is no longer any concern as to winter feeding. Milk production declined in December, especially after the severe cold of the last decade. Temperatures rose gradually in the first decade of January.

Hungary: On January 11 the condition of livestock was good on the whole. There were in some districts cases of foot-and-mouth disease and swine fever but only in a mild form.

Ireland: Milk production in December was rather below normal owing to the severe weather conditions.

Latvia: Milk production is about 15 to 20 per cent. higher than last year.

Netherlands: In December feeding conditions for milch cows were good throughout the country. Compared with December last year milk production was 6 to 7 per cent. lower. In Groningen production was 5 per cent. higher, and in Limburg about equal to last year. But in all other provinces production had declined as follows: Friesland, Drente, and North and South Holland 5 to 6 per cent. less; in Overijsel, Gelderland, Utrecht, Zeeland and North Brabant 10 per cent. less.

United Kingdom: Milk yields were difficult to maintain during the cold spell in December in spite of hand feeding and the use of concentrates.

United States: With feed grains abundant and cheap, there was a general tendency to feed livestock and poultry rather liberally in 1938. The production of livestock products, however, was limited by relatively small numbers of livestock on farms, particularly of hogs and chickens, as the result of liquidation following the droughts of 1934 and 1936. Although final figures are not yet available, the 1938 production of nearly all classes of livestock and livestock products is expected to be greater than in 1937 and the present tendency is towards increased numbers.

The quantity of milk produced on farms in 1938 is estimated to be the largest on record, totalling 4 to 5 per cent. greater than last year and probably 3 per cent. greater than the previous highest of 1933.

Net production of meat animals during 1938 was expected to show an increase of 7 per cent. over 1937 and to be the largest since 1933. The heaviest increase, estimated to be 12 to 15 per cent. on 1937, has been in hog production. Sheep and lamb production will probably be up about 5 per cent. on last year. Net production of cattle and calves was expected to be slightly larger than in 1937 with heavier slaughter weights and increased inventories of the end of the year more than offsetting the smaller number slaughtered.

The production of eggs in 1938 is estimated to have been about 2 per cent. greater than in 1937 and the largest since 1931. The number of chickens raised in 1938 was thought likely to exceed the number raised in 1937 by about 10 per cent. but to fall 2 to 3 per cent. below the 1927-36 average.

Algeria: Health of animals was satisfactory at the end of December. Foot-and-mouth disease has disappeared almost completely. The feed situation, however, is hardly satisfactory owing to the bareness of pastures and grazings. In the littoral and sub-littoral areas (Tell) only work animals are in good condition; other animals are in a precarious condition particularly those on low-lying lands which have been flooded. Herds on the high plateaux, which had been severely tested by the drought of earlier months, had to undergo some spells of great cold and grass was insufficient. There was no abnormal mortality. It was possible to move some of the herds to the Southern Territories where grass is plentiful in many places as a result of rain.

Union of South Africa: On the South Coast and Southwest of Cape Province good rains fell in November. Grazing was abundant and sheep were in excellent condition. Heavy rains also in the Karroo, Bechuanaland, Griqualand West, the Border districts and Transkei greatly improved grazing and prospects, particularly in drought affected areas, such as in Bechuanaland. But severe cold and frost later in November in the Border districts, the Northeast and the Transkei were unfavourable for shorn sheep and caused some losses in the Northeast.

Good rains also improved grazing in the Orange Free State, Natal and Transvaal, except in the drought-stricken southwestern highveld. Hail caused stock losses in the Orange Free State. Stock generally were in good condition however.

Australia: Milk production declined in the second half of December and first half of January owing to severe drought.

Current information on sericulture.

Indochina: Following the floods of October the supply of mulberry leaves fell away in Annam and many breeders were obliged to suspend rearings. Mulberries in gardens continued to supply the small amounts necessary for rearings required for breeding. In Tonkin the growth of leaves was checked, as is usual at this period.

TRADE

COUNTRIES	NOVEMBER				FOUR MONTHS (August 1-November 30)				TWELVE MONTHS (August 1-July 31)	
	EXPORTS		IMPORTS		EXPORTS		IMPORTS		EXPORTS	IMPORTS
	1938	1937	1938	1937	1938	1937	1938	1937	1937-38	1937-38
Wheat. — Thousand centals (1 cental = 100 lb.).										
<i>Exporting Countries:</i>										
Bulgaria	0	714	0	0	0	1,881	0	0	4,666	0
Hungary	936	282	0	0	7,499	1,470	0	0	4,053	0
Lithuania	87	0	0	0	139	0	0	0	41	0
Poland-Danzig	0	0	0	2	191	0	65	2	36	241
Romania . . . . .	...	...	...	...	1) 5,672	1) 8,858	1) 0	1) 0	19,291	0
Yugoslavia	230	114	0	0	2,263	2,314	0	0	2,352	0
U. S. S. R. . . . .	...	...	...	...	2) 10,209	2) 5,313	2) 0	2) 0	27,335	2,837
Canada	13,022	8,725	31	270	39,099	22,228	475	485	46,029	3,446
United States	2,936	3,835	537	110	12,662	12,974	1,833	1,112	54,046	1,323
Argentina	2,096	890	—	—	9,869	6,450	—	—	40,432	—
Chile . . . . .	...	...	...	2) 0	2) 0	2) 2	2) 0	0	0	1
Uruguay . . . . .	...	...	...	1) 874	1) 0	1) 1	1) 215	496	283	—
India: by sea	11	547	332	4	1,901	3,577	1,280	21	9,569	481
: by land . . . . .	...	...	...	2) 97	2) 42	2) 30	2) 58	433	196	—
Iraq . . . . .	...	...	...	2) 178	2) 192	2) 0	2) 0	1,076	1	—
Iran	0	134	0	2	0	489	0	2	489	2
Manchukuo . . . . .	...	...	...	3) 0	3) 0	3) 1	3) 0	413	4	—
Syria and Lebanon	42	0	29	67	80	3	178	101	36	480
Turkey . . . . .	...	...	...	1) 353	1) 445	—	—	2,115	—	—
Algeria	162	437	115	53	483	1,781	478	93	4,184	700
Egypt . . . . .	...	...	...	2) 0	2) 3	2) 0	2) 0	436	18	—
French Morocco	190	155	...	35	1,236	529	0	71	1,731	289
Tunisia	91	302	0	1	375	1,214	6	36	2,764	40
Australia	1,122	2,204	0	0	8,379	7,090	0	0	56,017	0
<i>Importing Countries:</i>										
Germany 4)	0	0	3,472	1,023	0	0	12,815	7,748	0	21,123
Austria 4)	0	1	778	422	2	4	1,369	965	9	4,081
Belgo-Luxemb. E. C.	254	187	2,902	3,195	541	848	9,667	10,210	2,628	24,945
Denmark	1	36	348	344	48	135	1,148	1,172	276	3,821
Spain	—	—	—	—	—	—	—	—	—	—
Estonia	0	0	0	1	0	10	11	22	10	103
Finland	0	0	76	58	0	0	426	315	0	987
France	602	0	823	1,190	622	237	3,376	3,590	276	10,899
Greece . . . . .	...	...	...	2) 0	2) 0	2) 1,482	2) 1,535	0	0	10,920
Ireland	0	0	729	685	0	0	3,219	2,630	0	7,705
Italy	0	17	286	97	26	37	1,793	1,676	40	5,734
Latvia	0	0	0	36	0	0	110	95	0	603
Norway	0	0	306	662	0	0	1,494	1,286	0	3,246
Netherlands	1	1	1,288	1,207	14	15	5,704	4,572	16	12,647
Portugal	0	0	22	15	0	0	504	21	0	1,374
United Kingdom	61	94	10,642	9,220	699	489	42,079	36,052	1,286	108,330
Sweden	1	202	266	89	5	221	608	395	1,425	996
Switzerland	0	0	816	688	0	1	3,852	2,799	3	8,972
Czechoslovakia . . . . .	...	...	...	3) 0	3) 356	3) 354	3) 24	860	2,793	—
Brazil . . . . .	...	...	...	...	...	1) 1,549	1) 1,813	—	20,872	—
Colombia . . . . .	...	...	...	...	...	2) 65	2) 74	—	294	—
Peru . . . . .	...	...	...	3) 0	3) 0	3) 152	3) 188	0	3,003	—
Burma	1	1	2	7	1	1	33	46	6	127
Ceylon	—	—	12	5	—	—	31	39	—	79
China	15	0	0	0	99	0	0	0	2	0
Chosen . . . . .	...	...	...	1) 0	1) 0	1) 22	1) 0	5	22	0
Taiwan . . . . .	...	...	...	...	...	1) 0	1) 0	—	0	—
Indochina . . . . .	...	...	...	1) 0	1) 0	1) 2	1) 0	0	0	1
Japan . . . . .	...	...	...	...	...	2) 52	2) 507	—	2,802	—
British Malaya . . . . .	...	...	...	2) 1	2) 0	2) 2	2) 2	2	11	—
Palestine	0	1	97	9	0	17	241	63	17	573
Union of South Africa . . . . .	...	...	...	2) 0	2) 3	2) 1,020	2) 1	4	555	—
New Zealand . . . . .	...	...	...	1) 0	1) 0	1) 283	1) 284	0	2,717	—
Totals	21,861	18,877	23,909	19,497	103,617	79,212	97,812	80,320	284,905	270,677

1) Up to 31 October. — 2) Up to 30 September. — 3) Up to 31 August. — 4) From 1 April 1938 not including trade between Germany and Austria.

COUNTRIES	NOVEMBER				FOUR MONTHS (August 1-November 30)				TWELVE MONTHS (August 1-July 31)	
	EXPORTS		IMPORTS		EXPORTS		IMPORTS		EXPORTS	IMPORTS
	1938	1937	1938	1937	1938	1937	1938	1937	1937-38	1937-38
Exporting Countries:										
Wheat flour. — Thousand centals (1 cental = 100 lb.).										
Bulgaria	0	6	0	0	2	24	0	0	46	0
Spain	—	—	—	—	—	—	—	—	—	—
France	183	150	65	101	599	597	313	334	1,605	963
Hungary	172	289	0	0	260	514	0	0	958	0
Italy	82	163	4	12	640	748	242	50	2,305	160
Latvia	0	0	0	0	0	0	0	0	15	0
Lithuania	0	0	0	0	11	0	0	0	5	0
Poland - Danzig	84	0	0	0	322	0	0	0	322	0
Romania . . . . .	...	...	...	...	1) 0	1) 0	1) 0	1) 0	0	0
Czecho-Slovakia . . . . .	...	...	...	...	3) 0	3) 167	3) 0	3) 0	752	5
Yugoslavia	1	20	0	0	19	87	0	0	306	0
U. S. S. R. . . . .	...	...	...	...	2) 292	2) 315	2) 15	2) 22	949	52
Canada	937	798	15	16	3,161	2,624	60	51	7,077	172
United States	844	926	15	0	3,499	3,444	75	1	10,159	183
Argentina	185	102	—	—	650	549	—	—	1,768	—
Uruguay . . . . .	...	...	...	...	1) 162	1) 0	1) 0	1) 0	225	0
Chosen . . . . .	...	...	...	...	1) 168	1) 36	1) 0	1) 0	217	0
India: by sea	108	125	0	0	483	463	1	1	1,450	4
Iraq . . . . .	...	...	...	...	2) 26	2) 24	2) 0	2) 0	116	1
Iran	0	0	0	0	0	0	0	0	0	0
Japan . . . . .	...	...	...	...	2) 1,165	2) 634	2) 0	2) 9	6,168	22
Algeria	55	70	15	4	198	203	64	17	657	113
French Morocco	0	0	0	0	0	0	0	0	0	0
Tunisia	33	30	3	10	129	112	49	26	310	112
Australia	863	948	0	0	4,672	3,879	0	0	12,976	1
Importing Countries:										
Germany 4)	0	1	0	81	4	2	29	377	84	1,277
Austria 4)	0	2	47	39	1	7	50	112	10	368
Belgo-Luxemb. R. U.	4	9	3	5	31	23	7	20	100	35
Denmark	2	4	63	19	11	13	220	67	29	293
Estonia	0	0	0	0	0	0	0	0	0	0
Finland	0	0	32	30	0	0	261	136	0	574
Greece . . . . .	...	...	...	...	2) 0	2) 0	2) 0	2) 2	0	23
Ireland	0	0	11	6	0	0	43	43	0	118
Norway	0	1	177	110	3	1	389	211	2	684
Netherlands	0	1	149	102	2	159	477	425	191	1,493
Portugal	0	0	4	3	0	0	17	15	0	43
United Kingdom	276	196	858	808	995	606	2,886	2,944	2,049	8,815
Sweden	0	1	1	0	2	7	2	0	18	3
Haiti . . . . .	—	—	...	...	—	—	1) 37	1) 44	—	169
Brazil . . . . .	—	—	...	...	—	—	3) 119	3) 99	—	857
Chile . . . . .	—	—	...	...	2) 0	2) 0	2) 7	2) 5	0	44
Colombia . . . . .	—	—	...	...	2) 0	2) 0	2) 3	2) 2	—	12
Peru . . . . .	—	—	...	...	3) 0	3) 0	3) 5	3) 4	0	38
Burma	—	0	47	53	0	0	216	210	3	633
Ceylon	—	—	41	31	—	—	140	109	—	322
China	32	0	551	73	32	0	2,118	253	0	3,680
Netherlands Indies:										
Java and Madura . . . . .	—	—	...	...	—	—	1) 301	1) 271	—	1,093
Outer Provinces . . . . .	—	—	...	...	—	—	1) 181	1) 156	—	644
Indochina . . . . .	...	...	65	31	1) 0	1) 0	246	134	1	434
British Malaya . . . . .	...	...	...	...	2) 24	2) 23	2) 237	2) 243	131	1,457
Manchukuo . . . . .	...	...	...	...	3) 0	3) 43	3) 584	3) 263	202	2,897
Palestine	0	0	38	28	0	1	136	148	2	436
Syria and Lebanon	0	0	11	18	15	17	28	18	32	105
Egypt . . . . .	...	...	...	...	2) 0	2) 6	2) 9	2) 5	32	85
Union of South Africa . . . . .	...	...	...	...	2) 0	2) 4	2) 1	2) 2	6	11
New Zealand . . . . .	...	...	...	...	1) 0	1) 0	1) 0	1) 0	0	1
Totals	3,861	3,842	2,211	1,580	17,578	15,333	9,572	6,829	51,279	28,432

1) Up to 31 October. — 2) Up to 30 September. — 3) Up to 31 August. — 4) From 1 April 1938 not including trade between Germany and Austria.

COUNTRIES	NOVEMBER				FOUR MONTHS (August 1-November 30)				TWELVE MONTHS (August 1-July 31)	
	NET EXPORTS *)		NET IMPORTS **)		NET EXPORTS *)		NET IMPORTS **)		NET EX. *)	NET IM. **)
	1938	1937	1938	1937	1938	1937	1938	1937	1937-38	1937-38
Total Wheat and Flour †). — Thousand centals (1 cental = 100 lb.).										
Germany 4)	—	—	3,472	1,129	—	—	12,847	8,248	—	22,714
Austria 4)	—	—	840	470	—	—	1,432	1,101	—	4,549
Belgo-Luxem. R. U.	—	—	2,647	3,003	—	—	9,093	9,358	—	22,230
Bulgaria	0	722	—	—	3	1,914	—	—	4,727	—
Denmark	—	—	428	328	—	—	1,379	1,110	—	3,896
Spain	—	—	—	—	—	—	—	—	—	—
Estonia	0	—	—	1	—	—	11	11	—	93
Finland	—	—	118	97	—	—	774	497	—	1,753
France	—	—	65	1,125	—	—	2,373	3,001	—	9,767
Greece	—	—	—	—	—	—	1,487	1,537	—	10,951
Hungary	1,166	667	—	—	7,847	2,154	—	—	5,331	—
Ireland	—	—	744	692	—	—	3,276	2,687	—	7,861
Italy	—	121	181	—	—	—	1,138	707	—	2,815
Latvia	0	—	—	36	—	—	110	95	—	583
Lithuania	87	0	—	—	153	0	—	—	48	—
Norway	—	—	542	808	—	—	2,009	1,566	—	3,924
Netherlands	—	—	1,485	1,341	—	—	6,324	4,912	—	14,368
Poland-Danzig	112	—	—	2	555	2	—	—	225	—
Portugal	—	—	28	20	—	—	526	40	—	1,431
Romania	—	—	—	—	1) 5,672	1) 8,838	—	—	19,293	—
United Kingdom	—	—	11,352	9,942	—	—	43,902	38,681	—	116,072
Sweden	—	115	265	—	—	—	604	166	449	—
Switzerland 5)	—	—	816	687	—	—	3,852	2,799	—	8,969
Czecho-Slovakia	—	—	—	—	3) 554	3) 355	—	—	—	936
Yugoslavia	231	140	—	—	2,289	2,430	—	—	2,758	—
Totals Europe	1,596	1,765	22,983	19,681	16,519	15,892	91,490	76,516	32,831	232,912
U. S. S. R.	—	—	—	—	2) 10,579	2) 5,704	—	—	25,694	—
Canada	14,220	9,498	—	—	42,759	25,174	—	—	51,789	—
United States	3,504	4,958	—	—	15,394	16,453	—	—	66,025	—
Haiti	—	—	—	—	—	—	1) 50	1) 59	—	226
Argentina	2,342	1,026	—	—	10,735	7,181	—	—	42,790	—
Brazil	—	—	—	—	—	—	3) 1,709	3) 1,945	—	22,015
Chile	—	—	—	—	—	—	2) 7	2) 7	—	59
Colombia	—	—	—	—	—	—	2) 70	2) 76	—	340
Peru	—	—	—	—	—	—	3) 158	3) 194	—	3,054
Uruguay	—	—	—	—	1) 1,090	—	—	1) 215	513	—
Burma	—	—	63	77	—	—	319	324	—	961
Ceylon	—	—	66	46	—	—	217	184	—	508
China	—	—	677	97	—	—	2,683	338	—	4,904
Chosen	—	—	—	—	1) 202	1) 49	—	—	257	—
Taiwan	—	—	—	—	—	—	1) 0	1) 0	—	0
India: by sea	—	710	177	—	1,264	4,172	—	—	11,017	—
" " by land	—	—	—	—	67	—	—	2) 16	236	—
Netherlands Indies:	—	—	—	—	—	—	—	—	—	—
Java and Madura	—	—	—	—	—	—	1) 401	1) 361	—	1,457
Outer Provinces	—	—	—	—	—	—	1) 242	1) 208	—	859
Indochina	—	—	—	—	—	—	1) 185	1) 137	—	579
Iraq	—	—	—	—	2) 212	2) 223	—	—	1,229	—
Iran	—	132	0	—	—	—	—	0	487	—
Japan	—	—	—	—	2) 1,502	2) 326	—	—	5,393	—
British Malaya	—	—	—	—	—	—	2) 285	2) 295	—	1,777
Manchukuo	—	—	—	—	—	—	3) 780	3) 289	—	3,185
Palestine	—	—	149	45	—	—	422	243	—	1,135
Syria and Lebanon	—	—	2	71	—	—	115	100	—	542
Turkey	—	—	—	—	1) 353	1) 445	—	—	2,115	—
Algeria	101	472	—	—	183	1,935	—	—	4,210	—
Egypt	—	—	—	—	2) 4	2) 11	—	—	348	—
French Morocco	189	120	—	—	1,235	457	—	—	1,442	—
Tunisia	131	329	—	—	478	1,292	—	—	2,988	—
Union of South Africa	—	—	—	—	2) 4	2) 1,021	—	—	—	559
Australia	2,272	3,468	—	—	14,609	12,261	—	—	73,318	—
New Zealand	—	—	—	—	—	—	283	285	—	2,686
Totals	24,355	22,478	24,117	20,017	117,181	92,059	100,448	81,792	322,682	277,758

*) Excess of exports over imports. — **) Excess of imports over exports.

†) Flour reduced to grain on the basis of the coefficient: Thousand centals of flour = 1,333-333 centals of grain.

1) Up to 31 October. — 2) Up to 30 September. — 3) Up to 31 August. — 4) From 1 April 1938 not including trade between Germany and Austria. — 5) Wheat only.

COUNTRIES	NOVEMBER				FOUR MONTHS (August 1-November 30)				TWELVE MONTHS (August 1-July 31)	
	EXPORTS		IMPORTS		EXPORTS		IMPORTS		EXPORTS	IMPORTS
	1938	1937	1938	1937	1938	1937	1938	1937	1937-38	1937-38
Rye. — Thousand centals (1 cental = 100 lb.).										
<i>Exporting Countries:</i>										
Bulgaria	0	37	0	0	0	50	0	0	158	0
Spain	—	—	—	—	—	—	—	—	—	—
Hungary	10	4	0	0	148	427	0	0	1,629	0
Latvia	0	0	0	0	0	0	0	0	0	0
Lithuania	200	0	0	0	608	0	1	0	1,084	0
Netherlands	141	97	14	115	354	714	265	489	1,617	1,308
Poland-Danzig . . .	554	2	0	0	1,005	47	0	0	228	13
Romania . . . . .	...	...	...	...	1) 21	1) 2,675	1) 0	1) 0	4,100	0
Yugoslavia	0	30	0	0	0	92	0	0	156	0
U. S. S. R. . . . .	...	...	...	...	2) 1,428	2) 846	2) 0	2) 0	8,314	0
Canada	142	29	0	0	469	211	0	12	363	35
United States	11	330	0	0	374	1,733	0	0	3,585	0
Argentina	7	9	—	—	40	39	—	—	96	—
Algeria	1	1	0	0	10	11	0	0	15	0
<i>Importing Countries:</i>										
Germany 4)	0	0	244	104	2	0	409	804	0	1,596
Austria 4)	0	2	0	345	2	7	92	1,723	15	4,131
Belgo-Luxemb. E.U.	0	0	506	231	10	0	1,757	697	85	2,462
Denmark	0	0	227	315	1	2	676	1,155	13	3,036
Estonia	0	0	0	81	120	1	118	216	102	325
Finland	0	0	2	40	0	0	240	132	0	668
France	0	0	1	1	0	0	9	10	0	17
Greece . . . . .	...	...	...	...	2) 0	2) 0	2) 0	2) 0	0	1
Italy	0	0	152	0	0	0	207	0	0	319
Norway	0	0	169	219	0	0	1,087	661	0	2,617
United Kingdom . . .	1	1	27	19	2	1	62	53	3	125
Sweden	0	0	12	0	0	1	61	2	1	108
Switzerland	0	0	45	13	0	0	182	41	0	295
Czecho-Slovakia . . .	...	...	...	...	3) 0	2) 0	3) 470	3) 1	3	4,148
Palestine	—	—	20	7	—	—	58	42	—	146
French Morocco . . .	0	0	0	0	0	0	0	0	0	0
Totals	1,067	542	1,419	1,490	4,594	6,857	5,694	6,038	21,567	21,350

1) Up to 31 October. — 2) Up to 30 September. — 3) Up to 31 August. — 4) From 1 April 1938 not including trade between Germany and Austria.

COUNTRIES	NOVEMBER				FOUR MONTHS (August 1-November 30)				TWELVE MONTHS (August 1-July 31)	
	EXPORTS		IMPORTS		EXPORTS		IMPORTS		EXPORTS	IMPORTS
	1938	1937	1938	1937	1938	1937	1938	1937	1937-38	1937-38
Barley. — Thousand centals (1 cental = 100 lb.).										
<i>Exporting Countries:</i>										
Bulgaria	0	3	0	0	0	245	0	0	256	0
Denmark	421	787	0	39	1,017	1,996	9	54	3,345	675
Spain	—	—	—	—	—	—	—	—	—	—
Hungary	22	5	0	0	32	100	0	0	170	0
Latvia	0	0	0	0	0	0	0	2	0	3
Lithuania	61	0	0	0	74	0	0	0	273	0
Poland - Danzig	503	411	0	0	1,369	1,230	0	0	4,605	0
Romania . . . . .	...	...	...	...	1,847	2,671	1)	0	5,109	0
Sweden	0	0	0	0	0	0	0	0	1	0
Czecho-Slovakia . . . . .	...	...	...	...	22	3)	0	3)	1,009	1
Yugoslavia	0	19	0	0	0	91	8	0	132	11
U. S. S. R. . . . .	...	...	...	...	4,534	2,946	2)	0	6,402	0
Canada	1,635	1,071	0	0	4,508	3,125	1	0	7,077	0
United States	349	1,086	0	76	3,434	4,342	0	431	8,747	506
Argentina	84	82	—	—	228	247	—	—	4,826	—
Chile . . . . .	...	...	—	—	224	27	—	—	1,403	—
India: by sea	0	1	5	4	33	162	19	29	476	39
Iraq . . . . .	...	...	...	...	845	1,030	2)	0	4,150	1
Iran	0	3	0	0	24	143	0	0	279	0
Manchukuo . . . . .	...	...	—	—	0	0	—	—	22	—
Syria and Lebanon	71	19	0	2	397	40	1	7	242	37
Turkey . . . . .	...	...	—	—	1,187	810	—	—	2,846	—
Algeria	1	39	16	3	156	156	20	11	462	198
Egypt . . . . .	...	...	...	...	62	74	2)	0	116	1
French Morocco	19	0	0	62	448	0	0	66	41	628
Union of South Afr. . . . .	...	...	...	...	0	0	0	0	0	0
Australia	2	17	0	0	71	60	0	0	2,568	0
<i>Importing Countries:</i>										
Germany 3)	0	0	1,256	535	0	0	3,514	1,747	0	7,695
Austria 3)	0	0	169	73	0	1	355	299	2	893
Belgo-Luxemb. E. U.	15	61	814	1,150	107	148	4,187	4,741	573	9,503
Estonia	0	0	0	0	0	0	4	0	0	94
Finland	0	0	0	0	0	0	0	1	0	2
France	2	0	102	214	4	2	625	694	6	1,995
Greece . . . . .	...	...	...	...	0	0	2	0	0	35
Ireland	0	8	2	3	0	13	62	125	14	384
Italy	2	1	77	100	8	3	133	209	7	981
Norway	0	0	40	30	0	0	155	168	0	281
Netherlands	76	107	205	402	412	497	2,120	2,228	677	5,504
United Kingdom	0	3	2,283	3,104	2	4	10,515	9,900	7	22,185
Switzerland	0	0	195	368	0	0	1,351	1,054	0	3,228
Burma	—	—	0	0	—	—	2	2	—	5
Ceylon	—	—	2	1	—	—	5	2	—	7
Chosen . . . . .	...	...	...	...	0	19	0	0	23	4
Indochina . . . . .	...	...	...	...	0	0	0	0	0	0
Japan . . . . .	—	—	...	...	—	—	0	11	—	54
Palestine	0	0	11	28	6	57	126	43	58	144
Tunisia	1	52	1	2	2	474	122	8	829	17
New Zealand . . . . .	...	...	...	...	0	0	6	3	0	288
Totals	3,264	3,775	5,178	6,196	21,053	20,713	23,344	21,835	56,753	55,359

1) Up to 31 October. — 2) Up to 30 September. — 3) Up to 31 August. — 4) From 1 April 1938 not including trade between Germany and Austria.

COUNTRIES	NOVEMBER				FOUR MONTHS (August 1-November 30)				TWELVE MONTHS (August 1-July 31)	
	EXPORTS		IMPORTS		EXPORTS		IMPORTS		EXPORTS	IMPORTS
	1938	1937	1938	1937	1938	1937	1938	1937	1937-38	1937-38
Oats. — Thousand centals (1 cental = 100 lb.).										
<i>Exporting Countries:</i>										
Bulgaria	0	0	0	0	0	0	0	0	2	0
Hungary	0	0	0	0	0	0	0	0	0	0
Lithuania	75	0	0	0	103	0	0	0	17	0
Poland-Danzig	0	0	0	0	0	0	0	0	186	0
Romania . . . . .	...	...	...	...	1) 0	1) 6	1) 0	1) 0	6	0
Czecho-Slovakia . . . . .	...	...	...	...	3) 9	3) 16	3) 0	3) 0	864	3
Yugoslavia	0	57	0	0	0	108	0	0	114	1
U. S. S. R. . . . .	...	...	...	...	2) 10	2) 5	2) 0	2) 0	61	0
Canada	384	276	157	753	1,041	540	781	1,773	1,624	4,014
United States	423	302	1	0	1,042	1,674	1	0	3,797	3
Argentina	257	831	—	—	1,565	1,704	—	—	9,065	—
Chile . . . . .	...	...	...	...	2) 114	2) 127	2) 0	2) 0	1,177	0
Chosen . . . . .	..	...	...	...	1) 0	1) 1	1) 0	1) 0	118	2
India: by sea	2	2	—	—	10	8	—	—	22	—
French Morocco	44	9	0	0	284	111	0	2	440	3
Tunisia	3	35	0	0	71	182	0	0	302	0
Union of South Afr. . . . .	...	...	...	...	2) 1	2) 7	2) 0	2) 0	11	0
Australia	2	9	0	0	13	23	0	1	86	2
New Zealand . . . . .	...	...	...	...	1) 0	1) 1	1) 1	1) 9	2	14
<i>Importing Countries:</i>										
Germany 4)	0	0	316	88	0	0	972	285	0	3,314
Austria 4)	0	0	0	11	0	0	201	137	1	417
Belgo-Luxemb. E. U.	0	1	2	13	0	1	91	131	2	1,124
Denmark	19	19	0	57	40	106	94	121	223	1,114
Estonia	0	0	0	0	0	0	0	0	0	73
Finland	0	0	0	2	0	0	20	49	0	144
France	1	0	14	7	6	2	115	278	7	493
Greece . . . . .	...	...	...	...	2) 0	2) 0	2) 0	2) 0	0	22
Ireland	0	0	0	0	3	0	0	0	30	0
Italy	0	0	0	36	4	20	6	134	65	369
Latvia	0	0	0	0	0	0	0	0	0	0
Norway	0	0	0	0	0	0	0	0	0	9
Netherlands	3	83	28	32	32	162	360	280	784	1,524
United Kingdom	0	7	290	159	2	12	743	371	28	1,324
Sweden	0	0	2	19	0	0	26	147	38	386
Switzerland	0	0	179	230	0	0	1,131	1,121	0	4,678
Uruguay . . . . .	...	...	...	...	1) 0	1) 15	1) 0	1) 0	15	0
Ceylon	—	—	1	1	—	—	6	5	—	15
Indochina . . . . .	...	...	...	...	1) 0	1) 0	1) 0	1) 1	0	2
Japan . . . . .	—	—	...	...	—	—	2) 0	2) 0	—	1
Syria and Lebanon	0	1	0	0	2	9	2	0	9	1
Algeria	1	1	41	45	5	2	324	225	16	473
Egypt . . . . .	—	—	...	...	—	—	2) 0	2) 0	—	0
Totals	1,214	1,633	1,031	1,453	4,357	4,842	4,874	5,070	19,112	19,525

1) Up to 31 October. — 2) Up to 30 September. — 3) Up to 31 August. — 4) From 1 April 1938 not including trade between Germany and Austria.

COUNTRIES	NOVEMBER				TWELVE MONTHS (November 1-October 31)				TWELVE MONTHS (Nov. 1-Oct. 31)	
	EXPORTS		IMPORTS		EXPORTS		IMPORTS		EXPORTS	IMPORTS
	1938	1937	1938	1937	1937-38	1936-37	1937-38	1936-37	1936-37	1936-37
Maize. — Thousand centals (1 cental = 100 lb.).										
<i>Exporting Countries:</i>										
Bulgaria	0	22	0	0	1,394	2,515	0	0	—	—
Hungary	0	646	0	0	4,223	2,648	226	10	—	—
Romania	—	—	—	—	2,787	15,323	0	0	—	—
Yugoslavia	101	1,916	—	—	13,850	13,313	0	2	—	—
U. S. S. R.	—	—	—	—	—	—	0	0	—	—
United States	3,361	959	21	99	80,178	152	371	54,153	0	1
Haiti	—	—	—	—	5	3	—	—	—	—
Dominican Republic	31	27	—	—	264	330	—	—	—	—
Argentina	7,119	13,144	—	—	66,006	220,620	—	—	—	—
Brazil	—	—	—	—	2,517	42	—	—	105	—
Burma	3	3	—	—	276	295	—	—	—	—
China	15	0	—	—	0	294	—	—	—	—
India: by sea 4)	0	0	—	—	2	2	—	—	—	—
Netherlands Indies:	—	—	—	—	—	—	—	—	—	—
Java and Madura	9	10	—	—	1,209	3,609	—	—	—	—
Outer Provinces	—	—	—	—	1,022	1,589	—	—	—	—
Indochina	1,543	1,337	—	—	12,554	11,444	—	—	—	—
Iraq	—	—	—	—	19	6	—	—	6	—
Manchukuo	—	—	—	—	4,911	2,239	—	—	2,528	—
Syria and Lebanon	1	0	0	0	18	4	1	1	—	—
Turkey	—	—	—	—	23	4	0	0	—	—
Egypt	—	—	—	—	7	52	114	0	52	1
Madagascar	8	9	0	0	1,180	746	0	0	—	—
French Morocco	0	0	0	0	0	390	479	0	—	—
Union of South Afr.	707	1,768	—	—	6,593	13,441	7	2	—	3
<i>Importing Countries:</i>										
Germany 5)	0	0	1,627	8,532	0	0	53,440	33,683	—	—
Austria 5)	0	0	446	599	0	1	6,746	7,541	—	—
Belgo Luxemb. E. U.	45	36	1,057	1,602	639	422	14,887	21,287	—	—
Denmark	1	3	119	532	253	27	8,357	14,890	—	—
Spain	—	—	—	—	—	—	—	—	—	—
Estonia	0	0	0	0	0	0	62	252	—	—
Finland	0	0	258	170	0	0	1,497	1,582	—	—
France	0	3	1,969	2,360	14	14	16,779	15,240	—	—
Greece	—	—	—	—	—	—	924	1,107	0	1,110
Ireland	0	0	726	834	0	0	1,223	1,107	—	—
Italy	0	0	115	54	0	0	7,616	6,684	—	—
Latvia	0	0	0	0	0	0	1,137	2,863	—	—
Norway	0	0	188	392	5	4	0	118	—	—
Netherlands	0	0	1,681	2,118	8	2	3,536	3,257	—	—
Poland-Danzig	0	0	0	8	0	0	21,062	21,471	—	—
Portugal	0	0	208	114	0	0	60	179	—	—
United Kingdom	297	237	6,375	8,553	2,790	2,581	1,223	450	—	—
Sweden	0	0	81	176	0	0	71,039	81,489	—	—
Switzerland	0	0	145	156	0	0	4,166	4,042	—	—
Czecho-Slovakia	—	—	—	—	—	—	2,350	2,548	—	—
Canada	0	0	774	1,049	198	18	983	1,255	18	1,475
Peru	—	—	—	—	2	218	3,811	13,620	—	—
Chosen	—	—	—	—	2	1	3	6	1	13
Japan	—	—	—	—	102	19	22	267	—	—
Palestine	0	3	16	5	—	—	4,924	6,367	—	6,803
Algeria	0	0	65	7	29	183	127	364	—	—
Tunisia	0	0	115	1	8	66	41	75	—	—
Australia	0	0	0	0	0	0	222	223	—	—
New Zealand	—	—	—	—	158	0	27	4	—	—
Totals	13,241	20,123	15,986	27,361	203,248	292,617	226,241	295,174	—	—

1) Up to 30 September. — 2) Up to 31 August. — 3) From 1 April 1937. — 4) From 1 April 1937 the Indian statistics include the trade of India with Burma, and exclude the direct trade of Burma with foreign countries. — 5) From 1 April 1938 not including trade between Germany and Austria.

COUNTRIES	NOVEMBER				ELEVEN MONTHS (January 1-November 30)				TWELVE MONTHS (January 1-Dec. 31)	
	EXPORTS		IMPORTS		EXPORTS		IMPORTS		EXPORTS	IMPORTS
	1938	1937	1938	1937	1938	1937	1938	1937	1937	1937
Rice. — Thousand centals (1 cental = 100 lb.).										
<i>Exporting Countries:</i>										
Spain	—	—	—	—	—	—	—	—	—	—
Italy	286	382	2	0	2,967	2,839	4	16	3,510	20
United States	230	294	37	85	2,930	1,699	538	1,813	2,001	1,874
Brazil	—	—	—	—	852	469	—	—	690	—
Burma	2,786	3,347	2	2	59,657	41,055	25	19	43,848	21
of which trade with										
India	(1,531)	(1,550)	—	—	(29,945)	(18,260)	—	—	(19,730)	—
Chosen	—	—	—	—	806	74	1	0	139	1
Taiwan	—	—	—	—	217	1	0	0	3	0
Indochina	1,354	2,058	13	12	21,209	28,673	207	38	31,195	48
Iraq	—	—	—	—	76	6	0	0	7	1
Iran	0	0	1	0	705	851	11	2	851	2
Siam	1,898	1,612	—	—	29,851	18,925	—	—	20,989	—
Egypt	—	—	—	—	603	2,709	2	2	3,324	3
Australia	23	28	1	3	256	483	25	77	520	80
<i>Importing Countries:</i>										
Germany 5)	51	50	382	485	491	539	5,424	4,473	596	4,862
Austria 5)	0	0	9	70	0	0	470	634	0	791
Beigo-Luxemb. E. U.	19	43	66	93	307	528	1,456	1,640	548	1,749
Denmark	2	1	75	2	3	3	288	123	3	146
Estonia	—	—	1	1	—	—	32	23	—	25
Finland	—	—	2	23	—	—	296	311	—	338
France	112	30	470	1,123	328	669	12,917	14,943	700	16,683
Greece	—	—	—	—	0	0	502	541	0	674
Hungary	0	0	74	66	0	0	306	340	0	515
Ireland	0	0	4	7	0	0	64	65	0	72
Latvia	0	0	2	1	0	0	20	20	0	22
Lithuania	0	0	0	2	0	0	11	11	0	11
Norway	0	0	4	5	0	1	90	114	1	120
Netherlands	134	172	70	284	1,846	2,753	3,687	4,980	3,002	5,128
Poland-Danzig	3	9	0	6	124	90	1,064	1,042	103	1,052
Portugal	1	0	2	5	1	0	60	80	0	82
Romania	—	—	—	—	—	—	313	299	—	536
United Kingdom	7	5	282	123	83	151	2,815	2,453	162	2,587
Sweden	—	—	15	9	—	—	246	287	—	309
Switzerland	0	0	45	60	0	0	462	340	0	397
Czecho-Slovakia	—	—	—	—	0	0	797	814	0	1,320
Yugoslavia	0	0	67	88	0	3	414	445	3	507
U. S. S. R.	—	—	—	—	2	2	881	758	17	789
Canada	1	0	66	19	7	33	566	728	34	766
Haiti	—	—	—	—	—	—	16	26	—	32
Chile	—	—	—	—	—	—	202	310	—	392
Colombia	—	—	—	—	—	—	217	188	—	255
Peru	—	—	—	—	0	0	450	190	0	244
Ceylon	0	0	701	814	2	1	11,216	10,889	2	11,692
China	2	0	81	813	9	472	8,825	6,912	472	7,622
India: by sea 6)	386	407	1,483	1,835	5,522	15,215	22,913	19,429	15,543	20,914
of which trade with										
Burma	—	—	(1,482)	(1,834)	—	—	(22,907)	(19,360)	—	(20,846)
India: by land 6)	—	—	—	—	351	358	1,330	1,294	485	1,580
Netherlands Indies:										
Java and Madura	29	42	—	—	168	357	493	34	378	195
Outer Provinces	—	—	—	—	148	231	5,552	2,566	259	3,702
Japan	—	—	—	—	95	135	343	486	219	738
British Malaya	—	—	—	—	3,285	1,929	14,122	12,128	3,106	16,073
Manchukuo	—	—	—	—	291	40	643	1,434	76	1,598
Palestine	14	2	65	33	101	103	438	414	105	443
Syria and Lebanon	0	0	41	40	0	0	336	381	0	415
Turkey	—	—	—	—	—	—	0	0	—	0
Algeria	0	0	228	22	31	56	897	761	59	838
Madagascar	14	7	0	0	233	72	0	15	88	15
French Morocco	—	—	16	45	—	—	228	570	—	621
Tunisia	0	0	3	8	1	0	496	442	0	468
Union of South Afr.	—	—	—	—	0	0	957	1,071	0	1,410
New Zealand	—	—	—	—	0	0	59	64	1	73
Totals	7,352	8,489	4,310	6,184	133,580	121,539	103,925	97,036	133,039	110,851

1) Up to 31 October. — 2) Up to 30 September. — 3) Up to 31 August. — 4) From 1 April 1937. — 5) From 1 April 1938 not including trade between Germany and Austria. — 6) From 1 April 1937, the Indian statistics include the trade of India with Burma, and exclude the direct trade of Burma with foreign countries.

COUNTRIES	NOVEMBER				ELEVEN MONTHS (January 1-November 30)				TWELVE MONTHS (January 1-Dec. 31)	
	EXPORTS		IMPORTS		EXPORTS		IMPORTS		EXPORTS	IMPORTS
	1938	1937	1938	1937	1938	1937	1938	1937	1937	1937
<i>Exporting Countries:</i>										
Latvia	15	9	1	12	57	54	10	33	52	41
Lithuania	11	117	0	0	65	397	0	0	456	—
Romania . . . . .	...	...	...	...	3) 0	3) 3	3) 4	3) 0	7	0
Argentina	2,082	2,463	—	—	23,876	36,529	—	—	39,712	0
Uruguay . . . . .	...	...	—	—	1) 1,894	1) 1,512	—	—	1,629	—
China	2	0	—	—	160	265	—	—	269	—
India: by sea 5) . .	445	423	0	0	5,992	4,751	1	0	4,867	0
" : by land 5) . .	—	—	...	...	—	—	2) 257	2) 217	—	244
Iraq . . . . .	...	...	—	—	2) 29	2) 38	—	—	51	—
Egypt . . . . .	...	...	...	...	2) 2	2) 10	2) 2	2) 0	17	1
French Morocco . .	6	33	—	—	122	229	—	—	242	—
Tunisia	0	0	0	0	0	2	0	1	2	1
New Zealand . . . .	...	...	...	...	1) 0	1) 6	1) 0	1) 0	7	0
<i>Importing Countries:</i>										
Germany 6)	0	0	199	156	0	0	3,087	3,613	0	3,976
Austria 6)	0	0	0	3	0	0	4	11	0	14
Belgo-Luxemb. E. U.	7	6	113	163	87	75	1,657	2,119	82	2,303
Denmark	—	—	11	33	—	—	348	461	—	501
Spain	—	—	—	—	—	—	—	—	—	—
Estonia	0	3	0	0	5	13	0	0	13	0
Finland	0	0	17	23	0	0	165	148	0	162
France	0	0	251	189	1	2	4,265	5,644	2	6,041
Greece . . . . .	...	...	...	...	2) 0	2) 0	2) 49	2) 84	0	117
Hungary	0	0	0	0	0	1	65	19	1	19
Ireland	0	0	2	10	0	0	128	100	0	110
Italy	0	0	75	208	0	0	1,106	1,638	0	1,783
Norway	0	0	31	71	0	0	431	528	0	534
Netherlands	3	4	639	487	111	113	6,119	6,298	132	7,068
Poland-Danzig . . .	0	0	0	0	0	0	0	0	0	0
United Kingdom . .	0	0	545	693	0	0	7,149	6,113	0	6,428
Sweden	—	—	115	57	—	—	1,032	1,063	—	1,166
Czecho-Slovakia . .	...	...	...	...	3) 0	3) 0	3) 337	3) 455	0	603
Yugoslavia	0	0	7	9	0	0	190	189	0	200
Canada	1	1	6	28	6	5	394	656	7	678
United States . . .	—	—	877	993	—	—	7,778	14,762	—	15,698
Burma	0	0	0	0	0 4)	0	0 4)	0 4)	0 4)	0
Japan . . . . .	...	...	...	...	2) 2	2) 0	2) 168	2) 133	0	178
Palestine	—	—	0	0	—	—	14	24	—	25
Algeria	0	0	0	0	0	1	1	29	1	29
Australia	0	0	104	22	0	0	702	777	0	787
Totals	2,570	3,059	2,993	3,157	32,409	44,006	35,463	45,115	47,579	48,707

1) Up to 31 October. — 2) Up to 30 September. — 3) Up to 31 August. — 4) From 1 April 1937. — 5) From 1 April 1937, the Indian statistics include the trade of India with Burma, and exclude the direct trade of Burma with foreign countries. — 6) From 1 April 1938 not including trade between Germany and Austria.

COUNTRIES	NOVEMBER				FOUR MONTHS (August 1-November 30)				TWELVE MONTHS (August 1-July 31)	
	EXPORTS		IMPORTS		EXPORTS		IMPORTS		EXPORTS	IMPORTS
	1938	1937	1938	1937	1938	1937	1938	1937	1937-38	1937-38
<i>Exporting Countries:</i>										
Cotton. — Thousand centals (1 cental = 100 lb.).										
United States . . .	2,538	4,260	72	46	8,146	13,044	271	157	29,884	795
Haiti . . .	...	...	—	—	1	9	—	—	105	—
Dominican Republic .	0	0	—	—	1	70	—	—	3	—
Argentina . . .	43	0	—	—	310	3	—	—	234	—
Brazil . . .	...	...	—	—	880	560	—	—	5,481	—
Peru . . .	...	...	—	—	206	299	—	—	1,489	—
Burma . . .	58	70	0	0	112	116	0	0	436	0
China . . .	186	13	39	2	994	72	119	37	1,955	181
India: by sea . . .	818	197	84	183	2,844	1,456	522	550	8,252	3,132
Netherlands Indies:										
Java and Madura . .	2	3	—	—	2	5	—	—	11	—
Outer provinces . .	...	...	—	—	2	6	—	—	49	—
Iraq . . .	...	...	—	—	4	7	0	0	85	5
Iran . . .	24	0	0	0	49	75	0	0	415	0
Syria and Lebanon . .	1	7	0	0	8	12	0	0	53	0
Turkey . . .	...	...	—	—	119	54	—	—	479	—
Egypt . . .	...	...	—	—	979	845	—	—	8,567	—
French Morocco . .	0	0	0	0	0	0	0	0	0	1
<i>Importing Countries:</i>										
Germany 4) . . .	0	0	437	629	0	0	2,351	2,321	0	6,914
Austria 4) . . .	0	0	75	68	0	0	300	283	0	832
Belgo-Luxemb. E. U. .	66	61	237	268	290	265	814	735	841	2,732
Bulgaria . . .	0	0	23	31	0	0	88	93	0	258
Denmark . . .	—	—	26	15	—	—	61	62	—	190
Spain . . .	—	—	—	—	—	—	—	—	—	—
Estonia . . .	0	0	13	13	0	0	48	54	0	133
Finland . . .	0	0	30	39	0	0	98	109	1	324
France . . .	37	27	636	722	104	111	2,025	1,920	386	6,777
Greece . . .	...	...	...	...	2)	2)	6	2)	11	66
Hungary . . .	0	0	72	51	0	0	199	151	0	500
Italy . . .	0	0	281	365	0	0	1,014	1,186	0	3,686
Latvia . . .	0	0	7	11	0	0	31	32	0	113
Lithuania . . .	0	0	4	5	0	0	18	19	0	55
Norway . . .	0	0	12	4	0	0	31	26	0	67
Netherlands . . .	0	0	109	132	4	3	416	364	13	1,198
Poland - Danzig . .	0	0	140	165	1	1	595	612	2	1,772
Portugal . . .	—	—	61	19	—	—	109	113	—	645
Romania . . .	...	...	...	...	3)	3)	43	26	0	440
United Kingdom . .	42	41	880	2,199	174	194	3,456	5,534	499	15,294
Sweden . . .	—	—	103	101	—	—	231	213	—	711
Switzerland . . .	0	0	38	106	0	2	179	239	3	718
Czecho-Slovakia . .	...	...	...	...	3)	3)	143	167	45	1,982
Yugoslavia . . .	0	0	67	57	0	1	187	178	1	482
U. S. S. R. . . .	...	...	...	...	2)	2)	211	2)	52	501
Canada . . .	—	—	214	232	—	—	537	542	420	1,400
Colombia . . .	—	—	...	...	—	—	13	13	—	91
Ceylon . . .	0	0	3	1	0	0	7	5	0	20
Chosen . . .	...	...	...	...	1)	1)	41	6	0	394
Taiwan . . .	—	—	...	...	—	—	1)	0	—	3
Indochina . . .	...	...	...	...	2)	2)	18	21	8	219
Japan . . .	...	...	...	...	2)	2)	2,190	2,068	106	10,028
Manchukuo . . .	...	...	...	...	3)	3)	68	47	0	788
Palestine . . .	0	0	1	2	0	0	4	5	0	15
Algeria . . .	0	0	0	0	0	0	2	2	5	6
Union of South Afr. .	...	...	...	...	2)	2)	3	4	5	28
Australia . . .	0	0	15	33	0	0	52	72	0	151
Totals . . .	3,815	4,682	3,679	5,499	15,232	17,518	16,291	18,029	59,833	63,647

1) Up to 31 October. — 2) Up to 30 September. — 3) Up to 31 August. — 4) From 1 April 1938 not including trade between Germany and Austria.

COUNTRIES	NOVEMBER				THREE MONTHS (September 1-November 30)				TWELVE MONTHS (Sept. 1-Aug. 31)	
	EXPORTS		IMPORTS		EXPORTS		IMPORTS		EXPORTS	IMPORTS
	1938	1937	1938	1937	1938	1937	1938	1937	1937-38	1937-38
Wool. — Thousand lb.										
<i>Exporting Countries:</i>										
Ireland	1,876	320	86	79	4,502	2,121	185	209	9,370	734
Argentina	29,218	5,009	—	—	47,252	16,076	—	—	231,383	—
Chile	6,418	2,458	—	—	14,592	7,939	—	—	40,720	—
Peru	—	—	—	—	163	49	86	0	20,946	917
Uruguay	—	—	—	—	—	—	—	—	11,830	—
Burma	15	0	0	0	62	51	0	0	83,256	—
China	602	814	—	—	3,845	3,854	—	—	10,126	148
India: by sea 3) . . .	6,671	2,522	392	511	20,715	12,747	1,548	1,301	8,735	8,049
: by land 3) . . .	—	—	—	—	—	—	1,153	966	0	10,856
Iraq	—	—	—	—	1,177	1,422	4	11	6,041	637
Iran	18	320	—	—	712	1,332	—	—	6,074	—
Manchukuo	—	—	—	—	—	—	—	—	6,171	697
Palestine	15	7	0	4	26	77	11	29	203	97
Syria and Lebanon . .	176	710	11	20	2,247	3,355	134	51	4,941	192
Turkey	—	—	—	—	4,683	3,364	—	—	12,097	—
Algeria	1,986	1,382	106	49	4,325	4,475	661	375	21,828	1,321
Egypt	—	—	—	—	518	798	7	9	2,491	104
French Morocco . . .	952	573	0	2	3,060	2,593	9	7	13,761	60
Tunisia	247	152	2	161	562	1,019	29	485	2,288	1,016
Un. of S. Africa . . .	38,173	28,261	—	—	60,407	47,413	2,066	203	210,461	2,066
Australia	120,666	98,633	326	249	1,292	1,091	—	—	6,989	—
New Zealand	3,417	3,111	—	—	256,685	221,484	1,235	602	732,887	13,481
	2,604	809	—	—	18,356	14,059	123	7	54,545	403
	—	—	—	—	8,865	6,682	4	2	212,471	99
	—	—	—	—	8,523	4,564	4	0	41,731	2
<i>Importing Countries:</i>										
Germany 3)	0	4	7,419	10,265	2	4	24,948	30,819	7	279,904
Austria 3)	0	0	2,826	2,538	0	88	8,457	8,545	123	30,713
Belgo-Luxemb.	2,930	3,704	9,193	13,569	10,302	12,586	4,171	1,495	64	19,191
Econ. Un.	2,643	1,645	331	179	7,871	6,118	1,168	1,102	49,520	204,316
Bulgaria	0	0	53	97	0	0	220	181	25,774	5,049
Denmark	128	60	814	247	346	174	2,112	1,239	0	1,409
Spain	—	—	—	—	—	—	—	—	478	6,391
Estonia	0	0	84	29	0	0	218	163	—	604
Finland	22	26	287	516	24	60	1,583	1,429	0	5,578
France	4,874	5,038	22,869	16,504	12,893	13,708	56,379	48,497	143	47,724
Greece	—	—	—	—	93	322	381	423	366,121	5,706
Hungary	0	24	185	46	99	172	434	121	1,733	1,237
Italy	29	0	5,157	5,324	49	37	17,783	16,599	408	70,438
Latvia	130	2	284	428	516	146	1,175	1,254	110	4,193
Lithuania	0	0	220	243	0	0	511	615	981	1,940
Norway	0	0	95	60	0	0	240	315	0	888
Netherlands	168	97	196	165	419	450	783	582	1,605	1,806
Poland - Dantzig . . .	161	201	939	225	258	807	2,332	756	2,174	7,253
Portugal	24	9	1,060	192	64	121	2,923	1,089	516	7,606
Romania	0	13	4,661	2,392	0	49	12,247	6,180	57	44,066
Sweden	88	165	75	62	170	591	359	240	957	2,961
Switzerland	—	—	—	—	—	—	—	—	273	1,898
Czechoslovakia	22,075	13,986	68,650	45,922	50,182	37,168	150,537	126,109	280,982	843,721
Yugoslavia	—	—	1,933	1,318	—	33	7,311	4,599	—	17,163
U. S. S. R.	22	4	1,248	580	—	51	2,848	1,391	249	13,373
Canada	—	—	—	—	—	—	—	—	626	30,675
United States	46	29	1,792	377	209	966	2,941	1,268	1,380	7,639
Japan	—	—	—	—	—	—	—	—	0	53,101
Totals	255,349	176,225	150,806	114,114	547,269	431,587	397,327	341,139	2,213,577	2,297,192

a) Wool, greasy. — b) Wool, scoured.

1) Up to 31 October. — 2) Up to 30 September. — 3) From 1 April 1938 not including trade between Germany and Austria.

COUNTRIES	NOVEMBER				ELEVEN MONTHS (January 1-November 30)				TWELVE MONTHS (January 1-Dec. 31)	
	EXPORTS		IMPORTS		EXPORTS		IMPORTS		EXPORTS	IMPORTS
	1938	1937	1938	1937	1938	1937	1938	1937	1937	1937
Butter. — Thousand lb.										
<i>Exporting Countries:</i>										
Bulgaria	11	7	0	0	46	31	0	0	31	0
Denmark	24,555	24,835	—	—	322,110	308,897	—	—	337,304	—
Estonia	1,989	2,593	0	0	30,772	27,481	0	0	29,057	0
Finland	2,156	1,761	0	0	35,706	29,053	0	0	30,733	0
France	494	467	126	75	5,842	6,177	1,479	1,387	6,629	1,495
Hungary	412	891	0	0	7,489	12,377	0	0	13,122	0
Ireland	2,136	985	0	0	41,588	41,731	644	1,464	42,552	1,464
Latvia	3,038	2,780	0	0	48,641	39,190	0	0	42,353	0
Lithuania	2,698	2,244	0	0	36,906	31,528	0	0	33,197	0
Norway	51	0	0	0	1,757	362	0	0	443	0
Netherlands	6,001	6,087	0	40	106,032	110,972	7	66	118,629	99
Poland-Danzig	1,757	2,163	0	0	28,460	16,286	0	0	17,877	0
Romania	—	—	—	—	172	101	—	—	214	31
Sweden	3,111	3,168	0	0	58,734	48,385	2	2	51,886	2
Czecho-Slovakia	—	—	—	—	1,768	840	798	1,499	1,587	1,676
Yugoslavia	11	4	—	—	183	223	—	—	225	—
U. S. S. R.	—	—	—	—	351	28,598	611	51	32,236	101
Argentina	2,963	2,178	—	—	13,148	16,777	—	—	19,357	—
Canada	368	1,918	2	0	3,635	4,015	5,232	60	4,096	66
Chile	—	—	—	—	2	2	2	0	11	0
Syria and Lebanon	15	88	4	24	994	317	51	161	362	170
Turkey	—	—	—	—	4	7	—	—	9	—
Union of South Afr.	—	—	—	—	3,053	7,134	0	291	7,205	1,806
Australia	27,571	30,007	0	0	198,152	160,129	0	0	182,915	0
New Zealand	41,052	33,349	—	—	274,739	312,303	7	0	343,325	—
<i>Importing Countries:</i>										
Germany 5)	0	0	15,128	17,051	0	0	188,200	173,418	0	191,439
Austria 5)	0	761	0	0	2,606	7,106	7	11	7,637	11
Belgo-Luxemb. E. U.	2	4	137	558	42	37	1,819	4,193	44	4,969
Spain	—	—	—	—	—	—	—	—	—	—
Greece	—	—	—	—	—	—	780	529	—	688
Italy	73	75	31	82	1,744	1,453	412	5,029	1,523	5,115
Portugal	4	13	0	0	88	79	0	26	95	26
United Kingdom	470	1,146	79,481	71,412	8,232	11,771	986,204	954,501	14,204	1,053,683
Switzerland	2	0	11	7	7	7	284	5,060	7	5,624
United States	269	55	106	236	1,801	741	1,550	10,602	800	11,111
Peru	—	—	—	—	194	95	187	88	104	203
Burma	0	0	68	73	0	0	586	445	0	518
Ceylon	—	—	88	95	—	—	785	708	—	811
China	—	—	37	22	—	—	497	796	—	825
India: by sea 6)	77	536	392	82	5,000	4,370	1,188	818	4,908	899
" by land 6)	—	—	—	—	—	—	4,969	4,722	—	5,699
Netherlands Indies:	—	—	—	—	—	—	—	—	—	—
Java and Madura	—	—	—	—	—	—	5,474	6,389	—	7,255
Outer Provinces	—	—	—	—	—	—	2,004	2,366	—	2,758
Indochina	—	—	—	—	2	2	626	699	4	915
Iraq	—	—	—	—	0	0	18	15	11	22
Iran	0	0	0	0	20	9	0	0	0	2
Japan	—	—	—	—	146	13	0	534	37	602
British Malaya	—	—	—	—	421	450	3,622	3,296	624	4,129
Palestine	—	—	401	443	—	—	4,184	4,903	—	5,340
Algeria	7	0	443	335	11	15	3,948	3,807	15	4,114
Egypt	—	—	—	—	227	11	1,003	917	13	1,276
French Morocco	—	—	271	245	—	—	1,843	2,480	—	2,692
Tunisia	0	0	168	22	0	2	1,257	1,479	2	1,651
Totals	121,293	118,115	96,894	90,802	1,240,825	1,229,086	1,220,268	1,192,843	1,345,383	1,319,287

1) Up to 31 October. — 2) Up to 30 September. — 3) Up to 31 August. — 4) From 1 April 1937. — 5) From 1 April 1938 not including trade between Germany and Austria. — 6) From 1 April 1937, the Indian statistics include the trade of India with Burma, and exclude the direct trade of Burma with foreign countries.

COUNTRIES	NOVEMBER				ELEVEN MONTHS (January 1-November 30)				TWELVE MONTHS (Jan. 1-Dec. 31)	
	EXPORTS		IMPORTS		EXPORTS		IMPORTS		EXPORTS	IMPORTS
	1938	1937	1938	1937	1938	1937	1938	1937	1937	1937
Cheese. — Thousand lb.										
<i>Exporting Countries:</i>										
Bulgaria	236	265	0	0	3,424	2,835	0	0	3,027	0
Denmark	2,002	1,790	7	2	18,761	19,134	26	26	20,668	29
Estonia	20	101	0	0	392	527	2	2	613	2
Finland	1,755	1,113	4	2	13,459	13,387	26	29	14,575	33
Ireland	302	249	2	4	1,991	1,684	37	40	1,872	44
Italy	6,213	5,368	633	880	48,632	48,343	9,301	8,371	52,814	9,451
Latvia	9	18	0	0	245	196	0	0	201	0
Lithuania	328	161	0	0	1,781	692	4	2	919	2
Norway	293	254	62	60	3,280	3,580	463	384	3,708	428
Netherlands	11,197	11,572	44	97	119,339	126,947	624	747	138,045	811
Poland-Danzig	15	4	22	20	492	1,303	280	212	1,305	234
Romania . . . . .	...	...	...	...	97	44	37	33	49	71
Switzerland	3,470	2,963	276	243	45,951	35,087	3,014	3,091	38,830	3,552
Czecho-Slovakia . . . . .	...	...	...	...	1,594	827	1,922	1,691	2,432	2,604
Yugoslavia	324	498	2	9	3,217	3,942	42	51	4,142	57
Canada	12,536	14,762	190	223	73,414	86,177	1,239	1,285	88,955	1,411
Argentina	346	401	—	—	3,900	3,007	—	—	3,267	—
Turkey . . . . .	...	...	—	—	40	26	—	—	29	—
Union of South Afr. . . . .	...	...	—	—	2,004	1,590	256	216	1,616	410
Australia	4,118	2,917	13	11	29,203	14,883	128	108	18,689	123
New Zealand	17,783	19,703	...	...	167,834	168,107	9	7	184,494	7
<i>Importing Countries:</i>										
Germany 5)	18	29	6,457	8,346	143	174	65,899	75,032	227	81,342
Austria 5)	128	1,191	115	110	3,497	9,403	1,601	1,847	10,532	2,015
Belgo-Luxemb. B. U.	20	29	4,270	3,979	249	344	49,461	45,933	368	49,970
Spain	—	—	—	—	—	—	—	—	—	—
France	2,590	2,066	2,824	1,876	23,689	22,470	28,848	26,206	24,712	29,057
Greece . . . . .	...	...	...	...	183	611	1,279	580	904	679
Hungary	66	15	0	0	708	772	2	2	977	2
Portugal	22	18	33	20	134	137	190	198	154	269
United Kingdom	392	694	34,553	26,570	4,491	5,606	306,366	298,985	5,935	329,239
Sweden	—	—	481	364	—	—	2,271	2,125	—	2,405
U. S. S. R. . . . .	...	...	...	...	35	31	192	487	71	547
United States	130	88	5,926	6,206	1,349	1,065	50,349	55,918	1,155	60,652
Chile . . . . .	...	...	...	...	7	13	51	53	22	73
Peru . . . . .	...	...	...	...	—	—	547	545	—	767
Burma	0	0	7	9	0	0	84	57	0	66
Ceylon	—	—	26	37	—	—	223	207	—	227
India: by sea 6)	0	0	154	121	2	4	1,049	1,144	4	1,239
Netherlands Indies:										
Java and Madura . . . . .	—	—	...	...	—	—	1,662	1,559	—	1,892
Indochina . . . . .	...	...	...	...	2	2	481	564	2	675
Iraq . . . . .	...	...	...	...	11	13	33	26	13	60
Iran	0	0	0	0	0	0	0	0	0	0
Japan . . . . .	—	—	...	...	—	—	11	123	—	150
British Malaya . . . . .	...	...	...	...	24	26	276	322	35	626
Palestine	0	0	185	243	29	15	1,859	2,145	15	2,353
Syria and Lebanon	29	79	64	84	666	538	551	741	551	825
Algeria	4	0	1,008	952	33	44	11,327	10,360	44	11,261
Egypt . . . . .	...	...	...	...	49	40	5,307	5,298	66	7,225
French Morocco	—	—	220	320	—	—	3,047	3,325	—	3,591
Tunisia	0	0	348	267	60	46	2,421	2,511	49	2,843
Totals	64,346	66,348	57,926	51,073	574,411	573,672	553,397	552,588	626,086	609,301

1) Up to 31 October. — 2) Up to 30 September. — 3) Up to 31 August. — 4) From 1 April 1937. — 5) From 1 April 1938 not including trade between Germany and Austria. — 6) From 1 April 1937 the Indian statistics include the trade of India with Burma, and exclude the direct trade of Burma with foreign countries.

COUNTRIES	NOVEMBER				TWO MONTHS (October 1-November 30)				TWELVE MONTHS (Oct. 1-Sept. 30)	
	EXPORTS		IMPORTS		EXPORTS		IMPORTS		EXPORTS	IMPORTS
	1938	1937	1938	1937	1938	1937	1938	1937	1937-38	1937-38
Cacao. — Thousand lb.										
<i>Exporting Countries:</i>										
Grenada . . . . .	...	...	—	—	1) 260	1) 736	—	—	9,209	—
Haiti . . . . .	...	...	—	—	4,138	3,413	—	—	3,452	—
Dominican Republic	575	2,403	—	—	—	—	—	—	62,265	—
Brazil . . . . .	...	...	—	—	—	—	—	—	249,681	—
Ecuador . . . . .	...	...	—	—	1) 3,547	1) 2,377	—	—	37,452	—
Trinidad . . . . .	...	...	—	—	1) 1,634	1) 1,113	—	—	42,102	—
Ceylon	752	999	—	—	1,281	1,698	—	—	8,836	—
Netherlands Indies:										
Java and Madura	311	456	—	—	514	686	—	—	3,415	—
Cameroon: Fr. m. t.	6,418	4,460	—	—	9,504	9,438	—	—	59,238	—
Ivory Coast	4,506	3,091	—	—	6,826	5,005	—	—	110,434	—
Gold Coast	33,795	30,638	—	—	52,475	52,715	—	—	513,000	—
Madagascar	0	84	—	—	95	97	—	—	538	—
Nigeria and Came- roon	12,551	11,460	—	—	16,537	19,125	—	—	211,821	—
São Thomé and Prin- cipe Islands	1,497	2,191	—	—	2,297	3,728	—	—	24,978	—
Togo: Fr. m. t. . . . .	...	...	—	—	1) 1,609	1) 0	—	—	14,925	—
<i>Importing Countries:</i>										
Germany 3)	0	220	17,932	15,825	0	432	34,181	33,001	1,684	170,722
Austria 3)	—	—	780	800	—	—	3,287	1,894	—	14,376
Belgo-Luxemb. E. U.	0	9	1,323	1,576	0	9	4,286	3,034	130	24,471
Bulgaria	—	—	254	172	—	—	414	216	—	1,576
Denmark	2	0	924	483	2	0	1,239	972	9	11,014
Spain	—	—	—	—	—	—	—	—	—	—
Estonia	—	—	220	106	—	—	236	194	—	1,041
Finland	—	—	37	26	—	—	86	66	—	364
France	0	0	9,703	8,655	0	0	17,302	17,679	51	93,681
Greece	—	—	—	—	—	—	—	—	—	3,655
Hungary	—	—	849	613	—	—	1,984	1,102	—	9,330
Ireland	—	—	631	123	—	—	847	148	—	3,847
Italy	—	—	897	2,361	—	—	1,237	2,806	—	20,239
Latvia	—	—	157	148	—	—	531	348	—	1,713
Lithuania	—	—	196	123	—	—	342	265	—	1,332
Norway	0	0	567	459	0	0	1,208	825	0	8,730
Netherlands	425	602	12,577	9,852	789	1,197	26,083	19,440	5,379	164,540
Poland-Danzig	—	—	2,094	1,493	—	—	4,136	3,488	—	17,719
Portugal	0	0	119	88	0	0	207	161	2	1,096
Romania	—	—	—	—	—	—	—	—	2)	3,501
United Kingdom	1,316	7,394	8,902	9,676	2,588	10,013	17,287	10,809	17,267	282,746
Sweden	—	—	1,521	1,268	—	—	3,415	2,079	—	14,070
Switzerland	18	0	913	311	18	11	1,984	974	262	18,503
Czecho-Slovakia	—	—	—	—	—	—	—	—	2)	21,976
Yugoslavia	—	—	251	207	—	—	602	496	—	2,815
U. S. S. R.	—	—	—	—	—	—	—	—	—	32,553
Canada	—	—	1,795	1,753	—	—	3,975	3,217	—	21,830
United States	—	—	20,003	39,062	—	—	47,144	67,433	—	466,297
Chile	—	—	—	—	—	—	—	—	—	1,982
Colombia	—	—	—	—	—	—	—	—	—	4,535
Peru	—	—	—	—	—	—	—	—	2)	930
Uruguay	—	—	—	—	—	—	1) 196	1) 170	—	1,548
Iran	—	—	7	0	—	—	18	7	—	31
Japan	—	—	—	—	—	—	—	—	—	5,051
British Malaya	—	—	—	—	—	—	—	—	62	68
Palestine	—	—	73	60	—	—	126	132	—	822
Syria and Lebanon	—	—	0	0	—	—	0	0	—	7
Algeria	0	0	62	7	0	0	64	11	0	470
Egypt	—	—	—	—	—	—	—	—	—	796
French Morocco	—	—	13	0	—	—	42	13	—	95
Tunisia	—	—	2	0	—	—	2	0	—	4
Union of South Africa	—	—	—	—	—	—	—	—	—	3,968
Australia	0	0	82	278	0	0	214	553	7	17,315
New Zealand	—	—	—	—	—	—	1) 139	1) 254	—	5,512
Totals	62,166	64,007	82,884	95,525	104,114	111,793	172,814	171,787	1,376,199	1,456,876

1) Up to 31 October. — 2) Up to 31 August. — 3) From 1 April 1938 not including trade between Germany and Austria.

COUNTRIES	NOVEMBER				FIVE MONTHS (July 1-November 30)				TWELVE MONTHS (July 1-June 30)	
	EXPORTS		IMPORTS		EXPORTS		IMPORTS		EXPORTS	IMPORTS
	1938	1937	1938	1937	1938	1937	1938	1937	1937-38	1937-38
Tea. — Thousand lb.										
<i>Exporting Countries:</i>										
Ceylon	16,120	18,389	0	0	90,167	85,110	0	0	231,823	0
China	10,375	6,391	340	4	56,405	38,226	1,737	68	72,746	485
Chosen . . . . .	...	...	...	...	90	46	1)	2	95	2
Taiwan . . . . .	...	...	...	...	11,486	12,148	1)	53	21,239	53
India: by sea	46,985	48,021	540	613	228,186	228,695	1,367	2,191	346,491	3,316
: by land . . . . .	...	...	...	...	3,503	3,417	...	...	13,678	...
Netherlands Indies: Java and Madura	10,205	10,723	...	...	49,979	46,271	1)	231	123,464	791
Outer Provinces . . . . .	...	...	...	...	10,931	10,450	1)	...	31,445	...
Indochina . . . . .	...	...	...	...	1,799	1,841	1)	465	4,350	1,382
Japan . . . . .	...	...	...	...	11,627	13,389	2)	51	41,112	112
<i>Importing Countries:</i>										
Germany 4)	13	26	1,517	1,138	68	185	5,545	4,707	309	10,992
Austria 4)	—	—	121	93	—	—	505	384	—	730
Belgo-Luxemb. E.U.	0	2	42	51	0	2	249	247	7	635
Bulgaria	—	—	9	18	—	—	31	46	—	82
Denmark	—	—	207	68	—	—	664	428	—	1,257
Spain	—	—	—	—	—	—	—	—	—	—
Estonia	—	—	11	11	—	—	46	44	—	99
Finland	—	—	44	26	—	—	148	110	—	273
France	2	0	267	205	7	7	1,067	1,109	20	2,978
Greece . . . . .	—	—	...	...	—	2)	88	53	—	313
Hungary	—	—	49	64	—	—	293	205	—	487
Ireland	15	265	2,535	2,776	26	747	10,631	12,602	897	24,784
Italy	—	—	18	22	—	—	62	106	—	311
Latvia	—	—	4	7	—	—	24	29	—	73
Lithuania	—	—	7	18	—	—	29	40	—	90
Norway	—	—	26	29	—	—	163	172	—	377
Netherlands	15	15	1,609	2,127	75	79	13,005	10,794	207	27,157
Poland-Danzig	0	0	373	295	0	0	1,609	1,530	2	3,810
Portugal	—	—	31	35	—	—	146	174	—	377
Romania . . . . .	—	—	...	...	—	—	35	117	—	518
United Kingdom	5,115	6,984	57,600	68,665	25,997	30,100	268,680	259,847	69,977	526,336
Sweden	—	—	84	79	—	—	505	379	—	1,003
Switzerland	0	2	152	168	4	11	858	677	22	1,581
Czecho-Slovakia . . . . .	—	—	...	...	—	—	168	146	—	1,204
Yugoslavia	—	—	44	62	2)	289	231	240	—	443
U. S. S. R. . . . .	...	...	...	...	2)	6,680	9,405	10,203	8,505	28,801
Canada	—	—	3,448	4,006	—	—	15,693	17,280	—	38,960
United States	—	—	8,404	9,176	—	—	35,415	38,504	—	85,839
Chile . . . . .	—	—	...	...	—	—	1,312	1,911	—	4,766
Peru . . . . .	—	—	...	...	—	—	214	300	—	1,501
Burma	11	4	44	370	119	77	137	1,534	1,574	7,599
Iraq . . . . .	...	...	...	...	2)	55	1,614	1,543	185	7,099
Iran	—	—	1,717	950	—	—	6,920	5,997	—	17,749
British Malaya . . . . .	—	—	...	...	2)	335	1,387	1,750	1,332	5,670
Manchukuo . . . . .	—	—	...	...	—	320	4,098	3,402	—	12,174
Palestine	0	0	68	68	0	0	223	276	2	686
Syria and Lebanon	0	0	33	33	0	0	181	121	2	340
Turkey . . . . .	—	—	...	...	—	—	631	520	—	2,161
Algeria	0	0	289	247	2	2	1,651	1,517	4	3,827
Egypt . . . . .	—	—	...	...	—	—	4,074	3,503	—	16,590
French Morocco	201	26	1,872	2,736	487	86	10,126	7,388	833	19,178
Tunisia	—	—	295	291	—	—	1,958	2,086	—	4,594
Union of South Afr. . . . .	...	...	...	...	2)	104	3,832	3,706	472	15,516
Australia	5,333	33	3,977	4,145	5,514	212	22,111	19,152	454	45,179
New Zealand . . . . .	...	...	...	...	1)	60	3,651	3,351	139	12,214
Totals	94,390	90,881	85,777	98,506	497,315	478,300	433,766	421,283	971,386	942,494

1) Up to 31 October. — 2) Up to 30 September. — 3) Up to 31 August. — 4) From 1 April 1938 not including trade between Germany and Austria.

COUNTRIES	NOVEMBER				FIVE MONTHS (July 1-November 30)				TWELVE MONTHS (July 1-June 30)	
	EXPORTS		IMPORTS		EXPORTS		IMPORTS		EXPORTS	IMPORTS
	1938	1937	1938	1937	1938	1937	1938	1937	1937-38	1937-38
Exporting Countries:										
Coffee. — Thousand lb.										
Costa-Rica	1,316	2,022	—	—	4,458	7,176	—	—	56,006	—
Guadeloupe	—	—	—	—	1) 46	1) 130	—	—	836	—
Jamaica	—	—	—	—	1) 2,835	1) 1,510	—	—	8,371	—
Haiti	—	—	—	—	1) 14,017	1) 10,838	—	—	50,341	—
Mexico	—	—	—	—	3) 6,499	3) 4,888	—	—	71,792	—
Nicaragua	—	—	—	—	1) 3,878	1) 1,634	—	—	30,905	—
Dominican Republic	1,658	2,641	—	—	5,370	5,889	—	—	19,213	—
Salvador	—	—	—	—	1) 15,210	1) 19,136	—	—	116,845	—
Brazil	161,399	114,916	—	—	937,417	591,778	—	—	1,933,410	—
Colombia	44,000	42,534	—	—	237,051	212,617	—	—	543,580	—
British Guiana	—	—	—	—	2) 18	2) 108	—	—	227	—
Dutch Guiana	—	—	—	—	2) 1,380	2) 1,182	—	—	4,949	9
Peru	—	—	—	—	3) 1,080	3) 1,246	3) 2	3) 0	5,481	—
Aden: by sea	—	—	—	—	2) 2,632	2) 1,495	—	—	7,088	7
India: by sea	364	1,001	0	0	2,454	3,203	2	7	16,405	—
Netherlands Indies:										
Java and Madura	5,097	7,774	—	—	26,650	44,675	—	—	71,547	—
Outer Provinces	—	—	—	—	1) 48,590	1) 68,646	—	—	118,953	—
Iadochina	20	20	—	—	276	148	1) 24	1) 35	811	141
Angola	—	—	—	—	1) 14,301	1) 14,279	—	—	30,830	—
Belgian Congo	—	—	—	—	2) 10,547	2) 8,254	—	—	38,766	—
Ivory Coast	—	—	—	—	1) 8,098	1) 9,751	—	—	29,798	—
Kenya	—	—	—	—	3) 1,733	3) 2,028	—	—	36,156	—
Uganda	—	—	—	—	3) 5,509	3) 3,849	—	—	28,149	—
Madagascar	9,623	5,573	—	—	36,517	28,433	—	—	70,817	—
Tanganyika	—	—	—	—	3) 7,941	3) 9,277	—	—	32,342	—
New Caledonia	—	—	—	—	3) 342	3) 119	—	—	4,460	—
New Hebrides	—	—	—	—	3) 240	3) 168	—	—	1,235	—
Importing Countries:										
Germany 4)	0	0	44,011	33,757	0	0	187,052	156,127	0	400,425
Austria 4)	0	0	1,484	897	0	0	7,410	4,791	0	10,986
Belgo-Luxemb. E. U.	948	132	8,076	12,081	2,758	2,194	47,807	43,378	4,526	117,593
Bulgaria	—	—	117	121	—	—	496	498	—	1,263
Denmark	—	—	5,267	3,554	—	—	37,922	23,909	—	61,624
Spain	—	—	—	—	—	—	—	—	—	—
Estonia	—	—	15	37	—	—	117	128	—	280
Finland	—	—	4,123	3,144	—	—	23,565	18,380	—	51,050
France	2	4	45,413	27,783	53	60	154,500	158,991	66	417,742
Greece	—	—	—	—	—	—	2) 3,521	2) 3,351	—	16,343
Hungary	—	—	284	500	—	—	2,180	1,885	—	4,334
Ireland	0	0	24	26	11	0	185	192	2	617
Italy	7	0	9,041	6,301	7	4	33,632	31,140	11	76,512
Latvia	—	—	55	31	—	—	172	152	—	443
Lithuania	—	—	26	26	—	—	121	132	—	375
Norway	9	11	4,414	3,448	62	84	17,866	14,028	187	38,239
Netherlands	1,318	353	10,437	20,362	6,973	1,726	53,041	43,859	8,256	101,631
Poland-Danzig	0	0	1,144	992	2	7	6,014	5,282	13	12,502
Portugal	93	121	977	1,060	620	847	5,437	4,517	2,310	14,288
Romania	—	—	—	—	—	—	3) 1,290	3) 882	—	6,460
United Kingdom	1,111	518	1,459	2,015	7,050	2,291	4,389	5,373	8,971	50,795
Sweden	—	—	9,879	8,521	—	—	51,948	42,701	—	105,716
Switzerland	0	0	2,998	1,986	0	2	16,464	9,877	4	31,370
Czecho-Slovakia	—	—	—	—	—	—	3) 4,156	3) 3,717	—	24,974
Yugoslavia	—	—	1,327	1,457	—	—	6,380	5,862	—	14,800
U. S. S. R.	—	—	—	—	—	—	2) 893	2) 187	—	1,398
Canada	29	62	3,627	4,610	108	150	15,679	15,309	401	41,950
United States	818	236	182,892	137,232	2,859	1,969	799,423	574,769	7,421	1,734,036
Chile	—	—	—	—	—	—	2) 2,079	2) 2,092	—	8,799
Uruguay	—	—	—	—	—	—	2) 1,687	2) 1,426	—	5,754
Ceylon	0	0	141	293	0	0	1,276	1,470	2	3,283
Burma	2	0	31	20	7	7	128	115	29	293
Iraq	—	—	—	—	—	—	2) 445	2) 368	0	2,273
Iran	—	—	44	2	—	—	529	60	—	633
Japan	—	—	—	—	—	—	2) 2,685	2) 8,065	—	17,403
British Malaya	—	—	—	—	2) 1,360	2) 1,400	2) 5,591	2) 5,368	5,505	23,140
Palestine	0	0	225	559	0	0	1,019	1,711	0	4,830
Syria and Lebanon	0	0	161	291	0	0	999	1,110	0	3,311
Turkey	—	—	—	—	—	—	3) 3,631	3) 3,124	—	11,477
Algeria	0	0	3,902	2,169	0	2	17,275	13,816	7	35,120
Egypt	—	—	—	—	—	—	2) 2,517	2) 3,836	—	21,511
French Morocco	—	—	505	357	—	—	2,044	2,670	—	5,937
Tunisia	0	0	357	340	7	0	1,303	1,448	4	3,415
Union of South Afr.	—	—	—	—	2) 7	2) 4	2) 10,035	2) 6,918	18	34,425
Australia	787	7	218	287	827	18	1,373	1,572	46	4,445
New Zealand	—	—	—	—	1) 0	1) 2	1) 231	1) 1,407	2	1,744
Totals	228,601	177,925	342,674	274,216	1,417,800	1,063,224	1,536,935	1,226,025	3,367,094	3,525,696

1) Up to 30 October. — 2) Up to 30 September. — 3) Up to 31 August. — 4) From 1 April 1938 not including trade between Germany and Austria.

STOCKS (*)

Stocks of cereals in farmers' hands in the United States.

PRODUCTS	Percentage of total production					Stocks in 1,000 cents				
	Jan. 1 1939	Oct. 1 1938	Jan. 1 1938	Jan. 1 1937	Jan. 1 1936	Jan. 1 1939	Oct. 1 1938	Jan. 1 1938	Jan. 1 1937	Jan. 1 1936
Wheat,	30.2	43.7	23.8	20.5	26.1	168,714	244,193	125,247	76,988	98,016
Oats	65.1	80.2	60.1	61.4	64.5	219,387	270,389	220,460	154,291	246,528
Maize (1)	78.9	(2) 15.0	71.2	64.4	69.7	1,006,477	197,195	934,074	451,884	790,105

(1) Data based on maize for grain. — (2) Percentage of previous year's crop.

Commercial cereals in store in Canada and the United States.

SPECIFICATION	Friday or Saturday nearest 1st of month (1)				
	January 1939	December 1938	November 1938	January 1938	January 1937
	1,000 cents				
WHEAT:					
Canadian in Canada	96,697	97,425	105,102	31,604	51,346
U.S. in Canada	256	333	244	1,115	0
U.S. in the United States	77,249	81,722	85,148	56,712	37,420
Canadian in the United States	0	4,967	2,349	2,869	15,073
TOTAL	174,202	184,447	192,843	92,300	103,839
RYE:					
Canadian in Canada	1,135	1,071	1,085	715	898
U.S. in Canada	13	13	13	381	0
U.S. in the United States	4,687	4,537	4,670	2,645	2,721
Canadian in the United States	0	24	40	0	315
TOTAL	5,835	5,645	5,808	3,741	3,934
BARLEY:					
Canadian in Canada	3,683	3,418	4,389	4,839	4,357
U.S. in Canada	0	0	366	0	(2) 13
U.S. in the United States	7,207	7,770	9,084	5,632	8,467
Canadian in the United States	0	15	85	70	2,788
TOTAL	10,890	11,203	13,924	10,541	15,625
OATS:					
Canadian in Canada	3,015	2,800	3,211	3,178	5,180
U.S. in Canada	466	485	268	1,221	17
U.S. in the United States	5,414	5,656	7,235	8,265	11,639
Canadian in the United States	0	0	0	0	0
TOTAL	8,895	8,941	10,714	12,664	16,836
MAIZE:					
U.S. in Canada	2,742	3,163	1,959	531	1
Of other foreign origin in Canada	454	377	292	2,031	3,361
U.S. in the United States	29,483	26,121	12,925	20,252	8,086
Of other origin in the United States	0	0	0	0	245
TOTAL	32,679	29,661	15,176	22,814	11,693

(1) Friday for Canada, Saturday for the United States. — (2) Danish barley.

(*) See also other tables of stocks on p. 75 and p. 88.

Cereals ⁽¹⁾ in elevators, mills, manufacturing establishments, etc. ⁽²⁾ in Germany ⁽³⁾.

LOCATION AND PRODUCTS	Last day of month				
	December 1938	November 1938	October 1938	December 1937	December 1936
	1,000 centals				
WHEAT:					
Grain in mills and elevators (a)	44,271	39,370	37,382	23,825	13,812
Grain held by manufactures, etc. (b)	573	527	428	251	181
Flour for bread in mills, etc. (a)	3,871	3,957	3,516	2,194	1,400
Flour for bread held by manufacturers, etc. (b)	42	40	37	35	46
TOTAL ⁽⁴⁾	49,736	44,893	42,252	26,896	15,922
RYE:					
Grain in mills and elevators (a)	46,222	43,314	41,480	28,025	16,400
Grain held by manufacturers, etc. (b)	1,118	1,334	1,362	919	190
Flour for bread in mills, etc. (a)	2,707	2,917	2,624	2,335	1,327
Flour for bread held by manufacturers, etc. (b)	20	13	42	13	7
TOTAL ⁽⁴⁾	50,706	48,264	46,132	31,740	18,279
BARLEY:					
In mills and elevators (a)	9,683	9,894	10,002	5,882	2,551
In manufacturing establishments, etc. (b) . .	9,341	9,837	9,416	9,689	6,235
TOTAL	19,024	19,731	19,418	15,571	8,786
OATS:					
In mills and elevators (a)	4,475	5,348	5,221	4,248	2,932
In manufacturing establishments, etc. (b) . .	602	547	487	690	611
TOTAL	5,077	5,895	5,708	4,938	3,543
MESLIN	553	447	394	333	130
MAIZE:					
In mills and elevators (a)	8,968	10,342	12,987	9,418	425
In manufacturing establishments, etc. (b) . .	1,001	1,204	935	586	150
TOTAL	9,969	11,546	13,922	10,004	575

(1) Excluding quantities in transit and stocks in the hands of bakers. — (2) Including cereals (a) in elevators and commercial mills, and (b) in the hands of manufacturers of mixed feedingstuffs, malt, coffee substitutes and other foodstuffs, and in breweries. — (3) 1937 frontiers. — (4) Including flour in terms of grain, on a basis which, in accordance with government regulations on milling, has been altered several times.

Stocks in farmers' hands in England and Wales.

PRODUCTS	Percentage of total production				Stocks in 1,000 centals			
	Jan. 1 1939	Jan. 1 1938	Jan. 1 1937	Jan. 1 1936	Jan. 1 1939	Jan. 1 1938	Jan. 1 1937	Jan. 1 1936
Wheat	42	36.8	39.2	38.3	17,293	11,494	12,105	13,910
Barley	37	24.2	31.8	32.5	6,586	3,123	4,725	4,794
Oats	53	50.4	52.7	53.4	12,611	10,596	12,746	13,597
Potatoes	53	48.3	43.8	47.7	41,754	33,820	27,640	30,755
Hay	66	67.9	67.6	66.8	64,893	107,523	97,012	99,254
Straw	62	59.0	60.9	62.8	54,992	45,347	50,652	53,402

Imported grain and flour at the ports of the United Kingdom and Ireland.

PRODUCTS AND COUNTRIES	First day of month				
	January 1939	December 1938	November 1938	January 1938	January 1937
	1,000 centals				
WHEAT AS GRAIN:					
United Kingdom	9,456	9,600	8,928	5,904	3,264
Ireland	1,632	1,512	1,344	1,248	1,416
TOTAL	11,088	11,112	10,272	7,152	4,680
WHEAT-FLOUR (calculated as grain):					
United Kingdom	(1) 384	(1) 336	312	648	720
WHEAT AND FLOUR, TOTAL	11,472	11,448	10,584	7,800	5,400
BARLEY:					
United Kingdom	1,400	1,560	1,440	1,280	1,280
OATS:					
United Kingdom	160	144	64	208	256
MAIZE:					
United Kingdom	1,200	1,296	1,200	3,984	4,296
Ireland	1,104	816	864	672	552
TOTAL	2,304	2,112	2,064	4,656	4,848

(1) Including 5,000 centals in Irish ports.

AUTHORITY: *Broomhall's Corn Trade News*, Liverpool.

Imported cereals in Antwerpen, Rotterdam and Amsterdam.

PRODUCTS AND LOCATION	Saturday nearest 1st of month (1)				
	January 1939	December 1938	November 1938	January 1938	January 1937
	1,000 centals				
WHEAT:					
Antwerpen	1,262	1,446	1,030	2,328	1,809
Rotterdam	2,099	2,108	1,638	1,666	1,193
Amsterdam	120	171	7	91	14
RYE:					
Antwerpen	58	32	113	46	51
Rotterdam	0	0	12	66	17
Amsterdam	2	0	10	0	0
BARLEY:					
Antwerpen	193	190	212	352	380
Rotterdam	24	22	71	66	8
Amsterdam	12	15	0	7	3
OATS:					
Antwerpen	0	2	15	12	15
Rotterdam	7	4	13	11	0
Amsterdam	49	50	29	27	26
MAIZE:					
Antwerpen	35	80	150	34	111
Rotterdam	29	121	33	187	88
Amsterdam	10	10	7	101	5

(1) For Antwerpen the data refer to the last day of the preceding month, for Amsterdam to the first day of the month indicated.

AUTHORITIES: *Nederlandsche Silo- Elevator- en Graanfactor Mij.*, Amsterdam, and *Chamber of Commerce and Industry for Rotterdam*, Rotterdam.

Cotton stocks on hand in the United States.

LOCATION	Last day of month				
	December 1938	November 1938	October 1938	December 1937	December 1936
	1,000 centals				
In consuming establishments	8,427	8,512	7,483	8,531	9,773
In public storage and at compresses . . .	76,188	77,411	76,100	58,974	38,044
TOTAL . . .	84,615	85,923	83,583	67,505	47,817

Cotton stocks at Bombay, Alexandria and Port Sudan.

LOCATION	Thursday nearest 1st of month ⁽¹⁾				
	January 1939	December 1938	November 1938	January 1938	January 1937
	1,000 centals				
Bombay ⁽²⁾	2,750	2,384	2,708	2,228	2,920
Alexandria ⁽²⁾	3,316	2,624	2,624	2,443	2,800
Port Sudan . . . . .	...	335	436	185	328

(1) For Port Sudan the data refer to the last day of the preceding month. — (2) Stocks held by exporters, dealers and millers. — (3) Quantities consumed in Alexandria, or returned to the interior of the country, are not included.
 AUTHORITIES: East Indian Cotton Assn. and Commission de la Bourse de Minet-el-Bassal.

Cotton stocks in Europe.

LOCATION, DESCRIPTION	Thursday or Friday nearest 1st of month ⁽¹⁾				
	January 1939	December 1938	November 1938	January 1938	January 1937
	1,000 centals				
<i>Great Britain:</i>					
American	2,487	2,537	2,635	3,317	1,679
Argentine	68	72	76	52	220
Brazilian	595	584	602	371	688
Peruvian	768	737	685	478	299
East Indian	150	165	206	154	240
Egyptian	475	408	407	387	600
Sudanese	404	308	416	305	434
W. Indian, W. and E. African, and other.	260	250	267	314	151
Total . . .	5,207	5,061	5,294	5,378	4,311
<i>Bremen:</i>					
American	836	927	725	1,009	677
South American	197	218	255	97	117
Other	125	129	127	70	127
Total . . .	1,158	1,274	1,107	1,176	921
<i>Le Havre:</i>					
American	1,280	1,238	1,092	1,329	1,056
South American	230	241	263	19	56
French Colonial	167	114	140	38	59
Other	28	26	34	56	50
Total . . .	1,705	1,619	1,529	1,442	1,221
<i>Total Continent ⁽²⁾:</i>					
American	2,475	2,524	2,147	2,683	1,886
South American	426	459	518	129	196
East Indian	85	87	83	55	103
Egyptian	94	94	102	66	76
W. Indian, W. and E. African, and other.	282	241	266	140	183
Total . . .	3,362	3,405	3,116	3,073	2,444
Grand total . . .	8,569	8,466	8,410	8,451	6,755

(1) Thursday for Continent, Friday for Great Britain. — (2) Including Bremen and Le Havre.

AUTHORITIES: Liverpool Cotton Assn. and (for Le Havre) Bulletin de Correspondance de la Bourse du Havre.

PRICES

PRICES BY PRODUCTS

All quotations are spot, on Fridays, unless otherwise stated. The monthly averages are based on the Friday quotations, and the yearly averages on the monthly.

DESCRIPTION	Jan. 13	Jan. 6	Dec. 30	Dec. 23	Dec. 16	AVERAGE			Commercial Season (3)	
	1939	1939	1938	1938	1938	Dec. 1938	Jan. 1938	Jan. 1937	1937-38	1936-37
Wheat (1)										
Budapest: Tisza wheat, 78 kg. p. hl. (pengő p. quintal)	20.37	20.30	20.45	20.57	20.55	20.45	21.30	21.22	21.44	19.04
Braila: Home-grown, good qual. (lei p. ql.)	412	422	435	420	420	418	* 522	n. q.	520	* 486
Winnipeg: No. 1 Manitoba (cents p. 60 lb.)	59 1/4	60 1/4	60 3/4	60 3/4	60	60 3/4	149 3/8	123 1/2	131 1/4	122 3/8
Chicago: No. 2 Hard Winter (cents p. 60 lb.)	n. 71 1/4	n. 71 3/4	n. 69 1/2	n. 68 1/4	n. 62	n. 66 1/2	n. 101 3/8	136 7/8	96 3/8	130
Minneapolis (cents p. 60 lb.):										
No. 1 Northern	76 1/8	71 3/8	75 3/8	73 7/8	72 7/8	73 1/2	111 3/8	146 1/2	104 3/8	141
No. 2 Amber Durum	68 1/4	69 1/8	67 1/2	65 1/8	64 3/8	65 1/8	100 3/8	153 1/8	93 3/4	138 1/8
New York: No. 2 Hard Winter (cents p. 60 lb.)	81 1/4	82 1/4	82 1/8	80 3/8	79 3/8	80 1/8	117 3/8	149 1/8	112 1/8	142 3/8
Buenos Aires (a): No. 2 Hard, 80 kg. p. hl. (paper pesos p. quintal)	4) 7.00	4) 7.00	4) 7.00	7.00	5.75	* 6.05	12.22	11.27	12.20	12.28
Karachi: White Karachi, 2% barley, 1 1/2% impurities (rupees p. 656 lb.)	25-2-0	25-0-0	25-14-0	24-8-0	23-12-9	23-12-7	29-2-6	32-13-6	26-15-9	31-4-11
Hamburg (c. i. f.; Rm. p. quintal):										
No. 1 Manitoba	7.90	7.98	7.93	7.81	7.86	7.89	16.72	13.95	14.50	13.32
Barusso, 80 kg. p. hl.	6.03	6.07 3)	6.23 2)	6.18 3)	6.25	6.27	12.18	11.31	11.45	11.90
Antwerpen (francs p. quintal):										
Home-grown	119.00	119.00	119.00	118.00	118.00	118.00	140.00	137.00	135.05	135.40
No. 1 Manitoba (Atlantic; in bond) . .	92.00	93.50	92.00	90.00	90.00	88.80	197.10	164.60	171.20	154.50
Bahia (in bond) (1)	77.00	80.00	79.50	78.50	79.00	78.10	159.00	142.20	142.10	141.05
London, Mark Lane: English (sh. p. 504 lb.; on the farm)	19/6	19/9	19/6	19/6	19/6	19/4 1/2	37/8 1/2	42/8 1/2	37/7 1/2	40/1 1/4
Liverpool and London (c. i. f., parcels, shipping current month; sh. p. 480 lb.):										
Danubian (on sample)	19/6	19/9	19/6	19/-	18/9 3/4	20/8 1/4	n. q.	n. q.	* 36/2 1/4	* 38/1 1/4
Soviet (on sample)	n. q.	n. q.	n. q.	n. q.	n. q.	n. q.	* 43/7 1/2	n. q.	* 38/5 1/2	n. q.
No. 1 Northern Manitoba (Atlantic) . .	28/3 3/4	28/6	2) 28/7 1/2	28/3	28/3	28/2	59/2 1/4	* 49/8 1/2	50/5 1/2	* 46/0 1/4
No. 1 Northern Manitoba (Pacific) . .	27/-	27/3	26/11 1/4	25/10 1/2	26/3	26/2 1/2	56/6	48/8	* 48/11	* 45/9 3/4
No. 3 Northern Manitoba (Pacific) . .	24/9 3/4	25/-	24/9 3/4	23/10 1/2	24/11 1/2	24/2 1/2	46/5 1/2	46/2	* 41/10 1/2	* 43/6
No. 2 Hard Winter (Gulf)	4) 21/4 1/2	4) 21/5 1/2	4) 21/8 1/4	4) 21/3 1/4	21/8 1/4	* 21/1 1/4	41/8 1/2	n. q.	39/0 1/4	n. q.
Soft White Pacific	n. q.	n. q.	n. q.	n. q.	n. q.	n. q.	36/6 3/4	n. q.	* 33/10 1/4	n. q.
Rosafé, 63 1/2 lb. p. bush	4) 21/6	4) 21/6	4) 21/9 3/4	4) 21/6	22/3	* 22/6	4) 41/8	4) 40/4 1/2	39/2 1/4	* 39/3 3/4
Choice White Karachi	n. q.	n. q.	n. q.	n. q.	n. q.	n. q.	n. q.	44/1 1/2	* 36/5 3/4	42/5 3/4
West Australian (cargoes)	4) 23/3	4) 23/4 1/2	4) 23/7 1/2	4) 22/7 1/2	4) 22/4 1/2	4) 23/2	37/5 1/4	43/11 1/2	37/7 1/2	43/2 1/2
New South Wales (cargoes)	4) 23/1 1/4	4) 23/6	4) n. 23/6	4) 22/6	4) 22/6	4) 23/11 1/2	37/6 1/4	43/8 1/2	37/6	43/0 1/4

* Indicates that the product was not quoted during part of the period under review. — n. q. = not quoted. — n. = nominal. — (a) Thursday prices.

(1) For fixed prices of wheat see Crop Report July 1938, p. 681 (for Berlin and Italy) and Sept. 1938, p. 861 (for France). — (2) Before Aug. 1937, "Barusso". — (3) August-July. — (4) New crop. — (5) Shipping Jan. — (6) No. 1 Hard Winter, shipping Jan. — (7) New crop; shipping Jan. — (8) Afloat.

DESCRIPTION						AVERAGE					Commercial Season ⁴⁾	
	Jan. 13	Jan. 6	Dec. 30	Dec. 23	Dec. 16	Dec. 1938	Jan. 1938	Jan. 1937			1937-38	1936-37
	1939	1939	1938	1938	1938	1938	1938	1937				
Rye ⁽¹⁾.												
Hamburg: Plata, 72-73 kg. p. hl. (c.i.f.; Rm. p. quintal)	5.59	5.55	5.68	5.79	n. q.	n. q.	11.54	10.70	*		11.08	10.30
Budapest: Pest rye (pengö p. quintal)	13.95	14.15	14.25	14.25	14.25	14.24	19.08	18.13			18.57	17.17
Warszawa: Good quality (zloty p. quintal)	14.75	14.62	14.62	14.42	14.42	14.35	23.00	22.28			22.52	21.58
Winnipeg: No. 2 rye (cents p. 56 lb.)	41 1/8	41 1/8	41 1/8	40 1/4	39 1/8	39 7/8	81 1/8	102 1/4			72 1/8	98 1/8
Minneapolis: No. 2 rye (cents p. 56 lb.)	45 7/8	45 1/2	44 1/8	42 7/8	42 3/8	42 1/2	75	111 1/2			67 1/8	99 7/8
Antwerpen (francs p. quintal):												
Home-grown	n. q.	n. q.	n. q.	n. q.	n. q.	n. q.	127.00	n. q.			124.85	n. q.
Soviet (in bond)	65.00	66.00	65.50	64.00	65.00	63.20	122.00	108.60			112.50	114.90
Plata (in bond)	87.00	88.00	88.00	87.00	87.50	87.10	129.50	125.40			124.55	122.85
Groningen (a): Home-grown (fl. p. quintal)	7.72	7.72	7.37	7.37	7.82	7.52	7.39	8.46	*		7.12	8.12
Barley ⁽¹⁾.												
Warszawa (zloty per quintal):												
Malting, good quality	18.00	18.00	18.00	17.75	17.75	17.95	22.00	26.00	*		22.41	25.12
Barley for other purposes, 1st quality	17.12	17.12	17.12	16.87	16.87	16.82	20.12	23.75			19.76	22.71
Bralla: Average quality (lei p. quintal)	360	360	360	365	365	358	383	n. q.			365	321
Winnipeg: No. 4 Western (cents p. 48 lb.)	35	35 1/4	34 1/8	35 1/8	34 1/4	34 1/2	60 1/8	78			56 1/8	66 1/4
Chicago: Feeding (on sample; cents p. 48 lb.)	39	41 1/2	41	40	40	40 1/2	55 1/4	85 1/4			51 1/8	74 1/4
Minneapolis: No. 2 Feeding (cents p. 48 lb.)	43	41 1/2	40 1/2	40 1/2	40 1/2	40 1/2	60 1/4	88 1/4			53 1/8	77 1/2
Antwerpen (in bond; francs per quintal):												
Danubian	79.50	80.50	88.00	81.00	81.00	78.10	112.60	115.30			106.10	107.75
No. 2 Federal ⁽²⁾	77.50	78.00	77.50	78.00	76.00	74.30	108.75	n. q.			100.80	n. q.
London, Mark Lane: English malting, good quality (sh. p. 448 lb., on farm)	35/-	35/-	34/-	34/-	33/9	38/8 1/2	54/4 1/2	43/6	*		53/-	41/2
Liverpool and London (c.i.f., parcels; shipping current month; sh. p. 400 lb.):												
Danubian, 3 % impurities	n. q.	20/3	20/-	n. q.	n. q.	n. q.	n. q.	n. q.			n. q.	* 23/5
Soviet (Azov-Black Sea)	19/6	20/-	n. q.	n. q.	n. q.	n. q.	n. q.	n. q.			* 24/-	n. q.
No. 3 Canadian Western (Atlantic)	³⁾ 20/1 1/2	³⁾ 20/4 1/2	³⁾ 20/2 1/4	³⁾ 19/10 1/2	³⁾ n.21/-	³⁾ 20/3 1/4	³⁾ 28/2 1/4	n. q.			* 25/11	* 27/3
No. 3 Federal (Atlantic)	n. q.	n. q.	n. q.	n. q.	n. q.	n. q.	³⁾ 23/11 1/2	n. q.			* 22/3	n. q.
No. 1 Californian brewing (sh. p. 448 lb.)	29/6	29/-	³⁾ 29/-	³⁾ 29/-	³⁾ 29/-	³⁾ 29/2 1/2	36/7 1/2	n. q.			34/11 1/2	* 40/6
Plata, 64-65 kg. p. hl. ⁽¹⁾	³⁾ 19/6	³⁾ 19/10 1/2	³⁾ 19/6	³⁾ 19/4 1/2	n. q.	n. q.	27/2 1/2	³⁾ 26/3 1/2			* 26/4 1/2	25/0 3/4
Iraqian	19/4 1/2	19/11 1/2	19/9	19/3	19/9	19/7 1/2	27/-	26/3 1/2			24/5 1/2	23/11
No. 1 Australian Chevalier (sh. p. 448 lb.)	¹⁰⁾ 26/-	¹⁰⁾ 26/3	¹⁰⁾ 26/3	¹⁰⁾ 26/3	¹⁰⁾ 26/9	¹⁰⁾ 26/4 1/2	39/-	44/9			* 37/3	* 39/3 1/2
Groningen (a): Home-grown, winter (fl. p. q.)	n. q.	¹¹⁾ 8.10	¹¹⁾ 8.07	¹¹⁾ 8.07	¹¹⁾ 8.12	¹¹⁾ 8.05	7.01	8.16			6.51	7.68
Oats ⁽¹⁾.												
Winnipeg: No. 2 White (cents per 34 lb.)	29 7/8	30	29 3/8	28 1/4	28 1/8	28 1/2	56 1/8	54			50 1/8	52 1/8
Chicago: No. 2 White (cents per 32 lb.)	33 1/2	33	32 1/2	31 1/8	31 1/2	31 1/2	34 1/8	54 1/2			32 1/8	49 1/4
Buenos Aires (b). No. 2 White, 49 kg. p. hl. (paper pesos p. quintal)	4.60	4.70	4.45	4.40	4.70	4.81	6.70	6.15			6.32	6.25
Paris: Home-grown (delivery regional depots; frs. p. quintal)	100.25	98.50	93.00	99.00	94.50	94.90	125.70	126.65			128.75	115.80
London, Mark Lane: English white (sh. p. 336 lb., on farm)	19/-	19/6	19/-	19/4 1/2	19/1 1/2	19/-	27/2 1/2	26/-			26/6 1/2	23/9 1/2
Liverpool and London (c.i.f., parcels; shipping current month; sh. p. 320 lb.):												
No. 1 Canadian feed (Atlantic)	³⁾ 16/1 1/2	³⁾ 16/4 1/2	³⁾ 15/11 1/2	³⁾ 15/9	³⁾ 15/6	³⁾ 15/9 3/4	n. q.	n. q.			* 24/-	* 24/-
No. 2 Canadian Western (Atlantic)	³⁾ 17/3	³⁾ 17/4 1/2	³⁾ 17/1 1/2	³⁾ 16/10 1/2	³⁾ 16/6	³⁾ 16/10 1/2	n. q.	n. q.			* 23/4 1/2	n. q.
Plata, f. a. q.	³⁾ 12/7 1/2	³⁾ 12/9	³⁾ 12/7 1/2	³⁾ 12/7 1/2	³⁾ 13/3	³⁾ 12/10	16/4 1/2	16/4 1/2			15/11 1/2	16/3 1/2
Milano (c) (lire p. quintal):												
Home-grown	99.50	99.50	97.50	97.50	97.50	97.50	101.50	94.50			100.05	99.60
Foreign	95.50	95.50	n. 92.50	n. 92.50	n. 92.50	n. 92.50	98.00	95.00			97.15	100.45

* Indicates that the product was not quoted during part of the period under review. — n. q. = not quoted. — n. = nominal. — (a) Prices of preceding Tuesday. — (b) Thursday prices. — (c) Saturday prices.

(1) For the fixed prices of rye, feeding barley and oats in Berlin see Crop Report July 1938, p. 68; for those of malting barley in Praha see Crop Report August 1938, p. 78. — (2) As from Sept. 23, 1938: No. 3 Federal. — (3) Also indicated as "fair average quality" (f.a.q.). — (4) August-July. — (5) Shipping Jan.; Pacific. — (6) Shipping April-May. — (7) Shipping Jan. — (8) New crop; shipping Jan-Feb. — (9) Shipping Feb.-March. — (10) New crop. — (11) Spring barley.

DESCRIPTION						Average					
	Jan. 13	Jan. 6	Dec. 30	Dec. 23	Dec. 16	Dec.	Jan.	Jan.		Commercial	
	1932	1939	1938	1938	1938	1938	1938	1937		1937-38	1936-37
Maize.											
Braila: Average quality (1el p. quintal) . .	410	410	410	420	405	405	n. q.	* 265		* 313	* 264
Chicago: No. 3 Yellow (cents p. 56 lb.) .	52 1/2	52 1/2	52	51 1/2	51 1/2	51 1/2	59 1/2	111 1/2		83	103 3/4
Buenos Aires (a): Yellow Plata (paper pesos p. quintal)	7.70	7.70	7.75	7.40	7.17	7.29	9.92	5.95		7.79	5.85
Antwerpen (in bond; francs p. quintal):											
Bessarabian	90.00	91.00	90.00	84.00	84.00	83.20	n. q.	n. q.	n. q.	n. q.	n. q.
Yellow Plata	90.50	92.50	93.00	88.50	88.00	86.80	112.80	80.60	n. q.	101.00	78.65
Cinquantino (Argentine "Cuarentino")	119.00	121.50	118.50	108.50	110.00	112.20	116.75	84.45	n. q.	109.05	83.10
Liverpool and London (c.i.f., parcels; shipping current month; sh. p. 480 lb.):											
Danubian	26/9	27/1 1/2	n. 26/9	25/6	25/3	25/6 1/2	* 29/7 1/2	26/1 1/2		27/5	* 23/5
Yellow Soviet	26/6	27/-	26/9	26/3	n. q.	* 26/6	n. q.	n. q.	n. q.	n. q.	n. q.
No. 2 Yellow American (Gulf)	26 4/2	26/9	* 26/7 1/2	26/0 1/2	26/1 1/2	20/0 1/2	n. q.	28/7 3/4		* 27/2	n. q.
Yellow Plata	27 6/2	27/10 1/2	* 27/6	26/7 1/2	26/3	26/4 3/4	32/8 3/4	23/4		28/8	22/4
No. 2 White flat African	n. q.	n. q.	n. q.	n. q.	n. q.	n. q.	* 31/1	n. q.		* 27/10	n. q.
Milano (b): Yellow, home-grown (lire p. quintal) (c)	90.00	90.00	90.00	90.00	90.00	90.00	86.00	82.00		83.00	85.55
Rice (milled) (2).											
Rangoon (shipping current month; rupees and annas p. 7500 lb.):											
No. 2 Europe (Burma)	207-8	212-8	205-0	207-8	220-0	214-8	231-10	269- 4		255-12	263- 4
Nanounstoe, small mills specials . .	190-0	193-8	183-8	187-8	200-0	193-3	204- 2	241-12		219-12	235-13
Big mills specials	187-8	187-8	180-0	182-8	192-8	187-8	193- 2	229- 6		207- 0	229- 6
Saigon (Indochinese piastres p. quintal):											
No. 1 Round white, 25 % broken . .	...	...	8.44	8.53	8.60	8.71	9.13	7.83		10.66	7.85
No. 2 Japan, 40 % broken . . . . .	...	...	8.11	8.28	8.35	8.42	8.82	7.64		10.11	7.58
Marseille: No. 1 Saigon (c.i.f.; frs. p. quintal) . . . . .	...	116.50	120.00	125.00	134.00	128.80	126.00	104.75		138.65	104.90
London (a) (c.i.f.; shillings p. cwt.):											
Italian oiled	17/3	17/3	n. q.	17/3	17/3	* 17/3	17/6	* 15/-		* 17/10	* 16/11 1/2
American Blue Rose, extra fancy . .	16/2 1/2	15/11 1/2	n. q.	15/7 1/2	15/7 1/2	* 15/7	15/9 1/2	19/8 1/2		15/0 1/2	18/1 1/2
No. 2 Rangoon or Bassein (Burma) (c) .	11 6/11 1/2	11 6/11 1/2	n. q.	11 6/11 1/2	11 7/0 1/2	* 11 7/0 1/2	8/5	9/5 3/4		8/3 1/2	9/2 1/2
No. 1 Saigon	11 7/-	11 6/7 1/2	n. q.	11 6/7 1/2	11 6/7 1/2	* 11 6/6 1/2	8/7	10/1 1/2		8/5 1/2	9/2 1/2
Siam Super (b)	11 8/1 1/2	11 7/10 1/2	n. q.	11 7/11 1/2	11 7/9 1/2	* 11 7/10	9/11 1/2	11/9 1/2		9/2 1/2	10/8
Tokyo: "Tyumai", brown Japanese, average quality (yen p. koku) . . . . .	...	...	...	...	...	...	33.11	30.10		...	32.37
Linseed.											
Buenos Aires (a): Current quality, 4 % impurities (paper pesos p. quintal) .	13.50	13.60	13.65	13.45	13.60	* 13.55	16.04	14.20		14.31	15.47
Bombay: Bold (rupees p. cwt.)	7-3-0	7-4-0	7-2-6	7-1-0	7-1-6	7-0-1	8-0-10	7-7-0		7-4-10	7-14-10
Antwerpen: Plata (in bond; frs. p. quint.)	151.00	156.00	153.50	157.00	154.50	154.80	186.00	170.80		166.20	183.10
London (c.i.f.; £ p. long ton):											
Plata (delivery Hull)	10-17-6	10-18-9	11-0-0	10-17-6	10-18-9	10-18-6	12-15-11	11-18-9		11-10-11	12-16-5
Bombay bold	12-18-9	13-0-0	12-18-9	12-15-0	12-15-0	12-13-9	15-4-1	14-13-9		13-3-9	15-5-7
Duluth: No. 1 Northern (futures; cents p. 56 lb.) (c)	188	188	188	186	189	* 184 1/4	204 1/4	218		183 3/4	204 1/8
Minneapolis: No. 1 Northern (cts. p. 56 lb.)	196	196 1/2	195 1/2	193 1/2	192	190 1/4	216 1/2	227		190	209 1/2
Cottonseed.											
Alexandria (a) (piastres p. ardeb):											
Upper Egyptian . . . . .	...	...	69.7	69.1	68.2	68.4	* 55.9	86.6		55.3	77.8
Sakellaris . . . . .	...	...	65.2	65.1	64.2	64.3	* 51.3	81.1		50.7	72.6
London: (c.i.f., shipping current month; £ p. long ton):											
Egyptian black	6-17-6	7-0-0	7-5-0	7-2-6	7-5-0	7-4-0	6-4-1	8-19-8		6-1-6	8-3-3
Sakellaris (spot) (b)	n. 6-13-9	n. 6-17-6	n. 7-0-0	n. 6-18-9	n. 7-0-0	n. 6-19-0	6-1-7	8-12-2		5-17-10	* 7-18-8

* Indicates that the product was not quoted during part of the period under review. — n. q. = not quoted. — n. = nominal. — (a) Thursday prices. — (b) Saturday prices.

(1) Oct. 1936-Jan. 1938: maximum prices for best quality. To end December 1936: free at Milano station; subsequently: free at producer's station. — (2) For the maximum prices of rice in Italy see Crop Report Oct. 1938, p. 979. — (3) As from June 1936 "London Standard". — (4) Quotations refer to May futures from January to May, to July futures in June and July, to September futures in August and September and to December futures during the remaining months. — (5) From June 8, 1938 indicated as Mela-Sakellaris. — (6) Maize: May-April. Cottonseed: Sept.-Aug. — (7) Yugoslavian, from the Adriatic. — (8) Shipping Jan. — (9) Dec. 9: 9.06; Dec. 2: 8.90. — (10) Dec. 9: 8.73; Dec. 2: 8.65. — (11) New crop; shipping Jan.-Feb. — (12) New crop; shipping Feb.-March. — (13) New crop. — (14) May futures.

DESCRIPTION						Average			Commercial	
	Jan. 13	Jan. 6	Dec. 30	Dec. 23	Dec. 16	Dec.	Jan.	Jan.	Season (%)	
	1939	1939	1938	1938	1938	1938	1938	1937	1937-38	1936-37
Cotton (%)										
New Orleans: Middling (cents p. lb.) . . .	8.58	8.56	8.65	8.60	8.39	8.49	8.68	13.06	8.87	12.78
New York: Middling (cents p. lb.) . . .	8.83	8.85	8.88	8.82	8.62	8.73	8.55	13.07	8.75	12.91
Bombay (rupees p. 784 lb.):										
Broach, f.g. (futures) (%)	157-6	161-0	161-4	159-4	158-8	158-15	173-3	227-13	166-11	224-14
Broach, f.g. (spot)	n. q.	n. q.	n. q.	n. q.	n. q.	n. q.	n. q.	n. q.	* 162-9	* 228-4
Oomra, fine (spot)	150-0	150-0	151-0	152-0	152-0	150-4	160-4	209-4	* 148-13	* 214-14
Alexandria (a) (talaris p. kantar):										
Sakellaridis, f.g.f. . . . .	...	...	12.50	12.95	12.60	12.74	14.35	19.09	14.19	19.22
Giza 7, f.g.f. . . . .	...	...	12.42	12.72	12.67	12.91	13.01	15.96	12.81	17.22
Ashmuni, f.g.f. . . . .	...	...	10.50	10.55	10.50	10.64 *	10.47	14.37	10.62	15.19
Bremen: Middling (U.S. cents p. lb.) . . .	9.91	9.96	9.45	10.00	9.83	9.97	10.36	15.06	10.63	15.01
M.g. Broach, f.g. (pence p. lb.) . . .	n. 4.40	n. 4.50	n. 4.50	n. 4.50	n. 4.50	n. 4.50	n. 4.54	n. 5.60	n. 4.68	n. 5.78
Le Havre: Middling (futures; frs p. 50 kg.)	395.50	408.00	414.00	403.00	404.00	409.30	382.35	386.85	392.75	366.60
Liverpool (pence per lb.):										
Middling, super good	5.89	6.00	5.95	5.94	5.86	5.85	5.73	7.97	5.79	7.89
Middling	5.19	5.30	5.25	5.24	5.16	5.15	4.93	6.20	4.97	7.11
São Paulo, g.f.	5.19	5.30	5.25	5.24	5.16	5.15	5.18	7.30	5.16	7.21
Broach, good staple, f.g.	n. 3.96	n. 4.05	n. 4.05	n. 4.05	n. 3.95	n. 3.96	n. 3.99	n. 5.78	n. 4.04	n. 5.71
C.P. Oomra, superfine	4.11	4.20	4.20	4.20	4.07	4.09	4.28	5.92	4.29	5.85
Egyptian Sakellaridis, f.p.	7.32	7.46	7.46	7.59	7.68	7.69	8.41	10.26	8.22	10.79
Giza 7, f.g.f.	7.37	7.51	7.51	7.54	7.73	7.69	7.58	8.91	7.42 *	9.72
Upper Egyptian, f.g.f.	5.93	6.03	6.03	6.06	6.11	6.11	6.25	8.03	6.31	8.46
Bacon.										
London, Provision Exchange (b) (shillings p. cwt.):									1938	1937
English, No. 1, lean sizable	95/-	100/-	100/-	98/-	98/-	98/-	98/-	92/-	91/1	94/5
Danish, No. 1, sizable	95/-	100/-	100/-	97/-	97/-	97/2	96/6	90/-	99/3	94/1
Irish, No. 1, sizable	92/-	97/6	97/-	95/-	95/-	94/11	93/7	89/3	95/11	92/9
Lithuanian, No. 1, sizable	84/-	91/-	91/-	89/-	89/-	89/-	86/-	83/3	91/8	87/4
Dutch, No. 1, sizable	90/-	97/-	97/-	95/-	95/-	95/-	93/-	86/-	96/1	91/4
Polish, No. 1, sizable	84/-	91/-	91/-	89/-	89/-	89/-	86/-	83/3	92/2	87/4
Swedish, No. 1, sizable	90/-	97/-	97/-	95/-	95/-	95/-	93/-	86/-	96/1	91/2
Canadian, No. 1, sizable	84/-	91/-	91/-	89/-	89/-	89/-	84/-	80/3	91/10	86/3
Butter (3).										
Köbenhavn (a): Danish (cns. p. quint.) .	260.00	260.00	260.00	260.00	260.00	260.00	235.00	193.50	230.50	224.45
Leeuwarden, Commission for butter quotations (a): Dutch (cents p. kg.) (%) .	85	85	84	84	86	83	80	65 1/2	80 1/4	77 1/8
Antwerpen, auction: Belgian (frs. p. kg.)	23.95	24.35	26.60	27.65	25.85	26.50	24.65	23.70	23.30	22.65
Liverpool: Irish creamery (sh. p. cwt.) .	n. q.	n. q.	n. q.	n. q.	n. q.	n. q.	142/-	109/-	* 124/6	121/3
London (c): English blended (sh. p. cwt.) .	135/4	126/-	123/8	123/8	123/8	123/8	133/-	126/-	132/7	131/7
London, Provision Exchange (b) (sh. p. cwt.):										
Danish creamery, unsalted	144/6	144/6	144/6	144/6	144/6	144/1	132/1	113/3	* 130/-	127/1
Lithuanian, unsalted	126/-	121/-	114/-	112/6	112/6	111/2	115/7	n. q.	* 115/8	* 114/11
Dutch creamery, unsalted	124/-	127/-	125/-	126/-	124/-	121/10	112/3	96/4	113/10	109/7
Argentine, finest, unsalted	117/-	109/-	104/-	102/-	104/-	101/-	* 106/8	90/9	* 102/11	* 94/4
Siberian, salted	n. q.	n. q.	n. q.	n. q.	n. q.	n. q.	n. q.	92/7	n. q.	* 100/2
Australian, finest, salted	122/-	115/6	110/-	108/-	109/-	107/-	108/9	93/10	114/9	109/8
New Zealand, finest, salted	123/-	116/6	112/-	111/-	111/6	109/5	110/-	94/-	117/1	110/5
Montreal (d): First grade creamery (cents p. lb.)	23 1/4	23	21	21 3/8	21 1/8	21 1/8	31 1/8	—	27	* 27 1/8
New York (d): g2 score, creamery (cents p. lb.)	26 1/4	26 1/8	28	27	28 1/2	28 1/2	33 1/4	34 1/4	28	34 1/4

* Indicates that the product was not quoted during part of the period under review. — n. q. = not quoted. — n. = nominal. — (a) Thursday prices. — (b) Average prices Thursdays, and Friday mornings. — (c) Average prices for weeks commencing on Thursdays. — (d) Wednesday prices.

(1) Prices of cotton Middling in Le Havre and s.g. Middling in Liverpool have been revised in order to make the series uniform as from August 1936. — (2) Quotations refer to futures April-May during the period September-May following, and to futures July-August during the remaining months. — (3) For fixed prices of butter in Germany see Crop Report Nov. 1938, p. 1080. — (4) For home prices these quotations must be increased by a consumption tax which, from Oct. 7, 1938 to Jan. 12, 1939 amounted to 70 cents per kg. and to 60 cents as from that date. — (5) Cotton: August-July.

DESCRIPTION	Jan. 13	Jan. 6	Dec. 30	Dec. 23	Dec. 16	AVERAGE			Commercial Season		
	1939	1939	1938	1938	1938	Dec. 1938	Jan. 1937	Jan. 1936	1938	1937	
	1938	1937	1936								
Cheese ⁽¹⁾ .											
Milano (lire p. quintal):											
Parmigiano-Reggiano, 1st quality, production 1936 ⁽²⁾	1,300.00	1,300.00	1,300.00	1,290.00	1,290.00	1,292.00	1,280.00	918.75	*1,229.00	* 868.80	
Parmigiano-Reggiano, 1st quality, production 1937 ⁽²⁾	1,170.00	1,170.00	1,170.00	1,160.00	1,160.00	1,162.00	1,150.00	850.00	1,130.85	895.15	
Gorgonzola green, mature, choice	730.00	710.00	710.00	710.00	710.00	710.00	800.00	700.00	773.10	714.60	
Roma: Roman Pecorino, choice (lire p. quintal)	1,100.00	1,100.00	1,100.00	1,100.00	1,100.00	1,100.00	1,050.00	931.00	1,058.30	954.05	
Alkmaar: Edam 40 +, National Mark, factory cheese, small (florins p. 50 kg.)	20.25	20.00	20.00	20.25	21.00	20.60	21.25	17.06	21.33	19.73	
Gouda: Gouda 45 +, National Mark, farm made, 1st qual. (florins p. 50 kg.)	26.75	26.75	26.75	26.75	26.75	27.00	27.69	21.80	25.72	25.21	
London, Provision Exchange (a) (shillings p. cwt.):											
English Cheddar, finest farmers	90/-	91/-	91/-	91/-	90/-	90/10	97/-	86/6	* 92/1	* 90/3	
English Cheshire, Nat. Mark Selected.	93/4	91/-	88/8	88/8	88/8	89/7	123/8	93/4	96/9	97/10	
Italian Gorgonzola	92/2	91/-	93/4	91/-	91/-	91/6	114/11	107/4	103/2	103/6	
Dutch Edam, 40 + (b)	60/6	61/-	63/6	64/6	65/6	65/1	66/3	50/7	59/3	57/1	
Canadian, finest white (b)	72/6	72/-	71/6	71/6	71/6	71/6	73/6	71/-	75/3	73/7	
New Zealand, finest white	70/-	69/6	69/-	69/9	70/-	69.2	67/6	54/6	69/6	66/6	
Eggs ⁽¹⁾ .											
Antwerpen, auction: Belgian, average quality (frs. p. 100)	69.00	70.00	62.00	75.00	56.00	62.20	57.50	38.25	58.80	52.05	
Denmark (c): Danish for export (crs. per quintal)	120.00	120.00	120.00	120.00	120.00	125.00	131.20 *	83.35	116.70	109.13	
Apeldoorn (d): Dutch, average quality 57/58 gr. each (fl. p. 100) . . . . .	...	4.25	4.25	4.40	4.65 ⁽¹⁾	4.49	3.85	3.21	3.85	3.77	
Barneveld (e): Dutch, average quality 57/58 gr. each (fl. p. 100)	4.20	4.30	4.40	4.90	4.40	4.61	3.74	3.16	3.90	3.77	
Warszawa (b): Polish, average quality, 50 gr. each (zloty p. 100)	11.00	11.50	11.50	11.50	11.75	11.05	15.28	8.74	8.31	8.11	
London, Egg Exchange (d) (shillings p. 120):											
English, National Mark, specials	19/6	20/6	20/6	n. q.	20/6	⁽¹⁾ *22/2	18/-	15/1	17/9 ^{1/2}	17/3	
Belgian, 15 1/2 lb. p. 120	n. q.	n. q.	n. q.	n. q.	n. q.	⁽¹⁾ *12/5 ^{1/2}	12/2 ^{1/2}	8/9	* 11/8 ^{1/4}	* 10/3 ^{3/4}	
Danish, 17 lb. p. 120	11/9	13/7 ^{1/2}	14/1 ^{1/2}	n. q.	14/3	⁽¹⁾ *14/10	13/7 ^{1/2}	10/8 ^{1/2}	12/7 ^{1/4}	12/2 ^{1/2}	
Northern Irish, specials ⁽¹⁾	18/1 ^{1/2}	19/-	19/3	n. q.	n. q.	⁽¹⁾ *21/3	17/3 ^{1/2}	14/10 ^{1/2}	16/8 ^{1/4}	16/7	
Lithuanian, 17 lb. per 120	n. q.	n. q.	n. q.	n. q.	n. q.	n. q.	n. q.	9/-	* 10/10 ^{1/2}	* 10/2 ^{1/4}	
Dutch, all brown, 67/69 grams each	14/-	15/6	16/-	n. q.	16/6	⁽¹⁾ *17/1	15/3 ^{1/2}	14/2 ^{1/4}	14/3 ^{1/4}	14/1	
Polish, 53/54 grams each	n. q.	n. q.	9/3	n. q.	n. q.	⁽¹⁾ *8/10 ^{1/2}	n. q.	n. q.	* 8/4	* 7/9 ^{1/2}	
Romanian, 53/54 grams each	9/3	9/10 ^{1/2}	9/10 ^{1/2}	n. q.	9/3	⁽¹⁾ * 9/-	* 11/7	* 7/3	8/7 ^{1/2}	* 8/5 ^{1/2}	
Chinese, "violet"	⁽¹⁾ 8/3	⁽¹⁾ 8/6	⁽¹⁾ 9/-	n. q.	n. q.	⁽¹⁾ * 8/0 ^{1/2}	n. q.	7/4	n. q.	* 8/11 ^{1/2}	
South African, 17 lb. per 120	n. q.	n. q.	n. q.	n. q.	n. q.	⁽¹⁾ *14/5	n. q.	10/8 ^{1/2}	* 13/11 ^{1/4}	* 13/7 ^{1/4}	
Australian, 16 lb. p. 120	10/6	11/4 ^{1/2}	12/-	n. q.	12/3	⁽¹⁾ *12/4 ^{1/2}	* 12/8 ^{1/2}	* 8/11	* 12/10	* 11/8	

* Indicates that the product was not quoted during part of the period under review. — n. q. = not quoted. — n. = nominal. — (a) Average prices Thursdays and Friday mornings. — (b) Average prices for weeks finishing on Saturdays. — (c) Average prices for weeks commencing on Fridays indicated. — (d) Prices on following Mondays. — (e) Thursday prices.

(1) For fixed prices of cheese in Germany see Crop Report August 1938, p. 782. — (2) Prices of 1936 cheese are compared with the yearly and monthly averages of cheese made in 1935 and 1934; prices of 1937 cheese with that of 1936 and 1935. The yearly averages refer to periods from Sept. to August. See Crop Report Jan. 1938, p. 92. — (3) Before Oct. 18, 1937, "Extra special" quality. — (4) Dec. 12: 4.50. — (5) Henceforth the quotations in each column with daily prices refer to the Mondays following instead of to those preceding the Fridays indicated; for prices on Dec. 12 see Crop Report of Dec. 1938, p. 1192. — (6) "Red" eggs. — (7) "Black" eggs. — (8) See note 5; "red" eggs.

OCEAN FREIGHT RATES ⁽¹⁾

DESCRIPTION	WEEK ENDING ON					AVERAGE			
	Jan. 14 1939	Jan. 7 1939	Dec. 31 1938	Dec. 24 1938	Dec. 17 1938	Dec. 1938	Jan. 1938	Jan. 1937	Commercial season ⁽²⁾
Shipments of wheat and maize.									1937-38 1936-37
<i>Rates in shillings per quarter:</i>									
Port Churchill to United Kingdom . . .	n. q.	n. q.	n. q.	n. q.	n. q.	n. q.	n. q.	n. q.	* 3/11 ¹ / ₂ * 2/10 ¹ / ₂
Montreal to United Kingdom	n. q.	n. q.	n. q.	n. q.	n. q.	n. q.	n. q.	n. q.	* 3/3 ¹ / ₄ * 2/6
St. John to Liverpool ⁽³⁾	2/11	2/11	2/11	2/11	2/11	2/11	3/10 ³ / ₄	2/11	* 3/5 * 2/10 ¹ / ₂
New York to Liverpool ⁽³⁾	2/11	2/11	2/11	2/11	2/11	2/11	3/6 ¹ / ₂	n. q.	* 3/3 n. q.
Northern Range to U.K./Continent . . .	3/-	3/-	3/-	3/-	3/-	* 3/-	2/10 ¹ / ₂	2/9	* 3/4 ¹ / ₄ * 2/9
Gulf to United Kingdom ⁽⁴⁾	3/6	3/6	3/6	3/6	3/6	3/6 ³ / ₄	3/9	n. q.	4/0 ¹ / ₄ n. q.
<i>Rates in shillings per long ton:</i>									
Danube to Antwerpen/Hamburg	n. q.	n. q.	n. 18/9	18/9	18/9	18/9	n. q.	n. q.	* 24/1 * 20/4
Black Sea to Antwerpen/Hamburg . . .	n. 12/6	n. 12/6	n. 12/6	n. 12/-	n. 11/10 ¹ / ₂	* 12/1 ¹ / ₂	n. q.	* 19/6	* 17/2 * 16/10
North Pacific to United Kingdom . . .	22/6	22/6	23/6	23/6	23/9	23/7 ¹ / ₂	34/10	28/3	33/4 * 29/9
La Plata/Down River ⁽⁵⁾ /Bahia Blanca to United Kingdom/Continent	n. 24/-	n. 24/-	n. 24/-	n. 24/-	n. 24/-	n. 24/-	26/3	21/1	* 26/10 23/11
La Plata Up River ⁽⁶⁾ /Necochea to United Kingdom/Continent	25/3	25/3	25/3	25/3	25/3	25/3	27/2	23/-	28/9 25/2
South Australia ⁽⁷⁾ to United Kingdom/ Continent (in bulk)	32/-	32/-	32/-	32/-	32/-	32/-	41/-	31/1	39/4 34/1
Shipments of rice.									1938 1937
<i>Rates in shillings per long ton:</i>									
Saigon to Europe	n. 27/-	n. 27/-	n. q.	n. q.	n. q.	n. q.	* 38/8	* 39/3	* 30/6 45/3
Burma to United Kingdom/Continent . .	n. 25/-	n. 25/-	n. q.	n. q.	n. q.	n. q.	n. q.	* 36/6	* 31/8 * 39/6

* Indicates that the rate was not quoted during part of the period under review. — n. q. = not quoted. — n. = nominal.

(1) Average rates for entire cargoes, except where otherwise stated, relating to contracts made, during periods often extending back several months, to operate during the weeks specified. — (2) Shipments of wheat and maize: Aug.-July. — (3) Rates for parcels by liners. — (4) Until Dec. 1937, rates for parcels by liners. — (5) "Down River" includes the ports of Buenos Aires, La Plata and Montevideo. — (6) "Up River" includes the ports on the Paraná River as far as San Lorenzo. Cargoes from ports beyond San Lorenzo (Colastine, Santa Fé and Paraná) are subject to an extra rate of freight. — (7) These rates refer to contracts made for shipments of wheat in bulk from South Australia (or Victoria) to the United Kingdom/Continent. They have been adjusted by the differences between the minimum rates ruling for shipments from other Australian States. The minimum rates per ton, fixed by the Tramp Shipping Administrative Committee, are: South Australia 32/-, Western Australia 32/-, New South Wales 31/6 (ex silo), 32/- (ex bags). An additional charge for bagged-wheat is fixed at 2/6 per ton in each case.

STOCKS

Cereals and potatoes belonging to farmers in Germany ⁽¹⁾.

PRODUCTS	Dec. 31 1938	Nov. 30 1938	Dec. 31 1937	Dec. 31 1936	Dec. 31 1938	Nov. 30 1938	Dec. 31 1937	Dec. 31 1936
	Percentage of total production				Stocks in 1,000 centals			
Winter wheat	47	56	34	37	51,000	60,800	29,200	33,500
Spring wheat	68	76	54	61	7,200	8,100	5,800	4,300
Rye	47	56	38	43	87,700	104,500	56,600	70,000
Winter barley	41	48	28	28	13,800	16,200	6,200	7,000
Spring barley	55	65	43	47	32,100	37,900	24,200	23,500
Oats	68	76	62	63	94,100	105,100	80,200	78,000
Meslin	66	76	59	64	18,200	20,900	15,000	13,300
Late potatoes	57	65	54	55	611,500	697,300	605,000	541,900

(1) 1937 frontiers.

AUTHORITY: Marküberichtsstelle beim Reichsnährstand (The absolute figures are calculated by the I.L.A.).

AVERAGE MONTHLY PRICES BY COUNTRIES (1)

GROUPS	DESCRIPTION	AVERAGE						Agricultural year ⁽²⁾	
		Dec.	Nov.	Oct.	July-	Oct.-	Oct.-	1937-38	1936-37
		1938	1938	1938	Sept.	Dec.	Dec.		
		1938	1938	1938	1938	1937	1936		
GERMANY (Prices in Reichsmarks per quintal)									
A I	+Wheat (Berlin) ⁽³⁾	20.50	20.30	20.10	20.10	20.33	20.20	20.52	20.57
	+Rye (Berlin) ⁽³⁾	18.70	18.50	18.30	17.90	18.80	16.50	18.69	16.68
	+Barley, feeding (Berlin) ⁽³⁾	17.20	17.00	16.90	16.50	17.03	16.60	16.99	16.98
	+Oats (Berlin) ⁽³⁾	17.40	17.30	17.20	16.73	16.50	16.20	16.87	16.77
	\$Potatoes, red (Berlin)	4.50	4.30	4.30	5.10	4.30	4.30	4.91	4.91
A II	+Oxen, live weight (Berlin)	87.20	89.00	88.20	85.33	85.27	84.00	84.15	83.50
	Calves, live weight (Berlin)	95.40	95.40	95.40	95.40	94.33	90.13	93.98	96.75
	+Pigs, 220-265 lb., live weight (Berlin)	101.00	101.00	101.00	105.27	101.87	101.00	101.88	99.75
	Milk, fresh (Berlin) per hectolitre	15.60	15.60	15.60	15.60	15.60	14.63	15.35	14.61
	+Butter, National Mark	274.00	274.00	267.00	269.00	260.00	260.00	260.00	260.00
	Creamery butter	260.00	260.00	253.00	246.00	246.00	246.00	246.00	246.00
	+Cheese, Emmenthal type (Kempten)	160.00	160.00	160.00	160.00	160.00	160.00	160.00	160.00
	Soft cheese, 20 % butterfat (Kempten)	58.00	58.00	58.00	58.00	58.00	56.00	58.00	56.00
	+Eggs, aver. size, marked "G.I.B." (Berlin) per 100	12.50	11.38	10.25	10.25	10.25	10.00	10.08	9.53
B I	Basic slag (Aachen) ⁽⁴⁾	0.211	0.190	0.220	0.220	0.203	0.209	0.212	0.214
	\$Superphosphate of lime, 18 % ⁽⁴⁾ ⁽⁵⁾	0.301	0.298	0.305	0.315	0.304	0.304	0.309	0.309
	\$Potash salts, 40-50 % ⁽⁴⁾	5.14	5.06	5.05	4.97	5.08	6.67	5.05	6.48
	Sulphate of ammonia, 21 % ⁽⁴⁾ ⁽⁵⁾	0.460	0.450	0.440	0.420	0.450	0.635	0.457	0.600
B II	Wheat-bran (Hamburg)	12.25	12.25	12.25	12.25	12.25	12.25	12.25	12.25
	Linseed cake (Hamburg)	16.25	16.25	16.25	16.25	16.25	16.25	16.25	16.45
	Coconut cake (Hamburg)	14.65	14.65	14.65	14.65	14.65	14.65	14.65	15.10
	Groundnut cake (Hamburg)	15.75	15.75	15.75	15.75	15.75	15.75	15.75	15.95
	Crushed soya extraction residue (Hamburg)	15.45	15.45	15.45	15.45	15.45	15.45	15.45	15.45

BELGIUM (Prices in Belgian francs per quintal)

A I	Wheat (Antwerpen)	118.00	119.25	121.00	123.70	137.05	125.75	136.55	132.85
	Rye (Antwerpen)	n. q.	n. q.	n. q.	* 117.80	124.40	n. q.	126.00	* 112.35
	Barley (Antwerpen)	n. q.	n. q.	n. q.	* 117.90	126.45	n. q.	126.10	* 116.35
	Oats (Antwerpen)	83.40	82.75	84.00	107.00	118.40	98.35	119.65	109.80
	Potatoes (Leuven)	27.50	28.50	32.50	40.50	38.65	39.65	45.30	37.40
	Flax, fibre (Gent)	1,740.00	1,712.00	1,787.00	1,691.65	1,670.00	1,883.00	1,702.00	1,867.00
A II	Oxen, live weight (Curegem-Anderlecht)	513.00	498.00	509.50	506.00	518.65	470.35	523.10	506.00
	Calves, live weight (Curegem-Anderlecht)	1,070.00	1,037.00	900.00	767.35	815.00	762.00	803.00	780.00
	Pigs, live weight (Curegem-Anderlecht)	880.00	878.00	941.00	894.65	623.00	626.00	677.00	593.00
	Butter (Antwerpen)	2,650.00	2,566.00	2,660.00	2,158.35	2,539.35	2,070.00	2,354.00	2,010.00
	Eggs (Antwerpen) per 100	62.20	74.25	79.50	65.45	75.35	64.45	57.40	48.50
B I	Basic slag, 13-18 % (Charleroi) (4)	2.05	2.04	2.05	* 1.91	1.50	1.75	1.52	1.63
	Superphosphate of lime, 14 % (producers' store) (4)	2.50	2.50	2.50	2.50	2.45	1.95	2.41	1.90
	Sylvinite-Kainite, minimum 14 %	29.50	28.50	28.50	27.85	28.85	28.35	29.00	28.45
	Nitrate of soda, 15 1/2 %	110.25	109.25	108.25	107.25	112.60	109.25	113.75	* 110.80
	Sulphate of ammonia, 20 %	97.00	96.00	95.00	93.00	97.35	94.00	98.50	* 95.55
B II	Maize, Plata (Antwerpen)	86.80	76.10	84.25	94.35	97.65	76.70	103.55	83.05
	Linseed cake imported	119.50	114.25	115.00	118.50	117.50	114.35	117.85	110.50
	Coconut cake imported	95.00	97.50	106.25	110.50	117.35	101.00	116.25	107.30
	Groundnut cake imported	102.00	102.50	105.00	107.00	113.65	118.00	* 111.00	* 114.70

DENMARK (Prices in Danish crowns per quintal)

A I	Wheat (Köbenhavn)	14.14	13.79	13.56	14.83	18.53	19.46	18.06	19.25
	Barley (Köbenhavn)	12.03	11.58	11.90	13.31	18.22	17.71	17.26	17.27
	Oats (Köbenhavn)	11.69	10.99	11.06	12.70	15.77	15.06	15.93	15.98
A II	Cows, live weight (Köbenhavn)	40.00	38.00	38.00	41.50	41.50	34.37	40.36	34.34
	Pork, dead weight	166.00	162.00	172.50	177.60	170.00	166.67	177.16	167.25
	Butter (Köbenhavn)	260.00	247.25	230.50	230.75	270.37	206.97	235.55	207.35
	Eggs, for export	125.00	146.50	150.50	128.50	163.50	146.27	119.37	101.95

* Indicates that the product was not quoted during part of the period under review. — † Indicates that the series is published in the *International Yearbook of Agricultural Statistics* and used in the table of average monthly prices in gold francs per quintal. — § Indicates that the series is published in the *International Yearbook of Agricultural Statistics*.

(1) Prices, for several countries, of plant (A I) and animal (A II) products sold by the farmer; also of fertilizers (B I) and concentrated feedings (B II) bought by the farmer, are published quarterly (Jan., April, July and Oct.). In cases where the market is not indicated, the price is the average for the whole country. — (2) July to June. — (3) See note Crop Report, July 1938, p. 681. — (4) Prices per kg. of active fertilizer in 100 kg. of commercial fertilizer. — (5) Free at buyers' stations.

GROUPS	DESCRIPTION	AVERAGE						Agricultural year	
		Dec.	Nov.	Oct.	July-Sept.	Oct.-Dec.	Oct.-Dec.	1937-38	1936-37
		1938	1938	1938	1938	1937	1936		
B I	Superphosphate, 18 %	6.50	6.50	6.40	6.51	6.49	6.21	6.61	6.33
	Potash salts, 40 %	13.45	12.95	12.95	13.24	13.12	13.12	13.49	13.52
	Sulphate of ammonia, 20.8 %	16.45	16.25	16.05	16.32	16.25	15.38	16.50	15.75
	Nitrate of lime, 15 1/2 %	16.40	16.20	16.00	16.25	16.20	15.33	16.45	15.70
B II	Rye, imported (Jutland)	14.80	14.52	14.00	14.42	18.58	14.94	17.81	16.80
	Maize, Plata (Jutland)	15.90	15.37	14.70	15.85	15.93	13.56	16.13	13.86
	Wheat-bran, Danish (Köbenhavn)	10.10	10.00	11.00	13.52	14.85	14.39	14.89	14.32
	Cottonseed cake (Köbenhavn)	14.75	14.15	14.40	15.25	17.01	17.49	16.24	17.03
	Sunflower-seed cake (Köbenhavn)	16.30	16.00	16.10	16.11	17.83	17.46	17.01	17.15
	Groundnut cake (Köbenhavn)	16.15	n. g.	17.07	16.87	17.80	18.13	17.26	17.97
	Crushed soya extraction residue (Köbenhavn)	16.15	16.23	16.70	16.78	17.69	16.75	17.24	17.13

DENMARK (continued)

FRANCE (Prices in francs per quintal)

A I	Wheat (Paris) ⁽¹⁾	204.50	203.00	201.50	199.00	183.00	146.00	183.90	145.05
	Rye (Paris) ⁽²⁾	124.00	121.00	129.00	134.05	140.00	119.35	142.80	128.35
	Barley, malting (Paris) ⁽³⁾	118.00	121.00	133.50	149.05	170.65	132.65	171.05	126.80
	Oats (Paris)	94.90	97.00	102.95	117.40	126.25	118.55	127.30	113.20
	Wine, red, 10° (Montpellier) per hectolitre	157.00	154.00	155.00	170.00	149.00	139.65	155.00	129.00
A II	Beef, dead weight, 2nd quality (Paris)	853.00	884.00	898.00	858.65	907.35	670.35	904.00	739.00
	Mutton, dead weight, 2nd quality (Paris)	1,510.00	1,480.00	1,503.00	1,351.35	1,221.65	1,028.00	1,217.00	1,090.00
	Pigs, live weight (Paris)	910.00	911.00	879.00	865.00	678.00	602.35	742.00	605.00
B I	Basic slag, 18 % (Thionville) ⁽⁴⁾	1.08	1.08	1.08	1.08	1.03	1.03	1.05	1.03
	Superphosphate, 14 % (North and East)	40.75	40.75	40.75	43.90	40.55	28.15	40.75	28.80
	Sylvinite, rich, 18 % (Upper-Alsace)	14.32	14.32	14.32	14.32	14.05	16.30	14.20	16.30
	Nitrate of soda, 16 %	133.35	131.85	130.35	127.85	106.50	83.00	116.05	86.10
	Sulphate of ammonia, 20.4 %	129.10	127.85	126.60	124.20	103.15	87.00	119.90	88.20
B II	Linseed cake (North)	162.00	157.00	156.25	155.60	133.15	99.50	134.55	91.55
	Coconut cake (Coudackerque)	n. g.	n. g.	n. g.	n. g.	125.00	n. g.	125.00	n. g.
	Groundnut cake (Coudackerque) ⁽⁵⁾	134.00	135.00	137.00	137.35	128.85	91.00	120.55	85.10

GREAT BRITAIN (Prices in shillings and pence: "A" per cwt; "B" per long ton).

A I	Wheat	4/3 3/4	4/5 1/4	5/0 3/4	6/8 3/4	8/11 1/4	8/7 1/4	8/6 1/2	8/9 1/2
	Barley, feeding	7/7 3/4	7/10 1/4	9/1 1/2	9/6 3/4	12/11 3/4	9/9 1/2	11/9 1/2	9/6
	Oats	6/-	6/1	6/4 1/2	7/7 3/4	8/5 3/4	6/11	8/6 1/4	7/7 3/4
	Potatoes (London)	4/7	4/6	5/-	5/2 1/4	6/7	8/5 3/4	7/1 1/4	8/7 3/4
A II	Beef, dead weight (London)	66/-	64/2	64/5	72/3	67/5	57/10	72/7	65/7
	Mutton, dead weight (London)	64/9	60/8	62/5	68/5	78/-	79/11	76/8	89/3
	Pork, dead weight (London)	82/10	81/8	79/11	77/7	86/10	81/2	80/9	75/6
	Butter (London)	123/8	125/5	131/10	133/9	145/5	126/-	137/-	124/2
	Cheese, Cheddar (London)	90/10	89/3	88/9	86/1	93/7	84/11	94/9	84/8
	Eggs, National Mark, (London) per 100	18/5 1/4	20/3 1/4	19/11	15/8 1/4	19/10 1/4	18/11	14/10 1/4	14/-
B I	Basic slag, 14 % (London)	46/-	46/-	46/-	46/-	46/-	43/-	45/3	44/3
	Superphosphate, 16 % (London)	59/-	59/-	59/-	61/-	60/-	56/-	60/9	58/-
	Kainite, 14 % (London)	55/-	55/-	55/-	55/-	55/-	55/-	55/-	55/-
	Nitrate of soda, 15 1/2-16 %	160/-	160/-	160/-	160/-	160/-	152/-	159/4	152/-
	Sulphate of ammonia, 20.6 %	149/-	148/-	146/-	147/4	147/8	138/8	149/7	141/4
B II	Bran, British (London)	117/-	113/6	129/7	131/10	156/-	140/7	150/7	138/10
	Bran, middlings, imported (London)	106/4	106/9	123/5	133/9	159/1	136/10	150/11	137/5
	Linseed cake, English (London)	194/-	195/9	200/-	198/2	211/7	188/1	208/3	194/2
	Cottonseed cake (London)	125/4	120/-	120/-	114/7	114/3	109/-	111/10	113/7
	Palm-kernel cake (Liverpool)	150/-	150/-	150/10	149/7	n. g.	138/9	148/4	140/2
	Coconut cake (Liverpool)	150/-	150/-	153/5	151/8	150/10	138/9	154/1	142/7
	Groundnut cake (London)	148/-	135/3	146/10	145/2	156/7	163/10	152/-	162/5

* , †, §: See notes on page 76.

(1) See note in Crop Report September 1938, p. 86r. — (2) Quotations at end of month. — (3) Before March 1938, quotations at end of month. — (4) Prices per kg. of active fertilizer in 100 kg. of commercial fertilizer. — (5) Before Dec. 1936, prices in Marseille. — (6) Extra white quality. — (7) Revised prices: Sept. 122/9; Aug. 138/5.

GROUPS	DESCRIPTION	AVERAGE						Agricultural year	
		Dec.	Nov.	Oct.	July-Sept.	Oct.-Dec.	Oct.-Dec.	1937-38	1936-37
		1938	1938	1938	1938	1937	1936		
ITALY (Prices in lire per quintal)									
A I	†Wheat, soft (Milano) (1)	148.00	148.00	148.00*	148.00	138.00	123.40	138.85	123.75
	Wheat, hard (Catania) (1)	157.00	157.00	157.00	157.00	147.00	134.00	148.40	134.45
	Oats (Milano)	97.50	97.50	97.50	93.50	101.50	94.50	101.00	* 99.35
	†Maize (Milano)	90.00	90.00	90.00	90.00	84.65	88.40	84.35	85.35
	Rice, Vialone (Milano) (2)	248.40	248.00	248.00	246.10	238.00	163.35	* 227.80	171.60
	†Rice, Maratelli (Milano) (2)	193.40	193.00	193.00	189.35	183.50	143.85	* 180.20	151.85
	§Rice, Originario (Milano) (2)	162.20	163.00	165.50	160.50	156.40	122.00	149.90	126.90
	§Hemp, fibre (Milano)	590.00	590.00	590.00	590.00	590.00	* 549.00	582.35	* 543.00
	§Olive oil "Soprafino locale" (Bari)	712.00 (3)	712.00	698.00	692.00	684.00	635.00	699.00	682.00
	§Wine, ordinary, 1 st (Bari) per hectolitre	* 107.00	135.00	(135.00)	135.00	95.85	50.00	* 97.55	51.25
A II	§Oxen, live weight (3 rd quality) (Milano)	409.00	399.00	415.00	406.65	500.00	368.00	462.10	380.65
	Lambs, dead weight (Roma)	632.60	626.85	760.60	817.10	754.90	636.35	791.60	714.10
	Pigs, live weight (Milano) (2)	491.00	510.00	550.00	526.00	630.00	450.00	599.50	* 511.80
	†Cheese, Parmigiano-Reggiano (Milano)	1,162.00	1,153.00	1,010.00	1,156.00	1,066.65	850.00	1,100.00	858.50
	Eggs (Milano) per 100	68.35	71.35	62.15	49.75	65.15	58.15	49.45	45.70
	Wool, Italian (Roma)	2,602.00	2,602.00	2,602.00	2,602.00	2,602.00	2,065.00	2,602.00	* 2,114.00
B I	Superphosphate of lime, 14-16 % (Milano)	24.75	24.75	24.75	24.75	24.75	19.70	* 24.35	20.85
	Chloride of potash, 50 % (Milano)	71.50	71.50	71.50	71.50	70.90 n.	58.00	71.10	* 58.50
	Nitrate of lime, 15-16 % (Milano)	93.05	91.15	89.25	87.35	91.15	78.50	92.15	81.25
	Sulphate of ammonia, 20-21 % (Milano)	87.75	86.80	85.85	84.25	86.80	77.50	87.75	79.50
	Cyanamide of calcium, 15-16 % (Milano)	70.15	69.00	68.25	67.70	69.65	58.80	70.15	60.75
	§Copper sulphate, 98-99 % (Genova)	n. q.	n. q.	n. q.	n. q.	n. q.	n. q.	* 200.20	* 186.20
B II	Wheat-bran (Genova)	⁽⁸⁾ 60.00 ^(*)	60.00	60.00	60.00	60.35	45.85	57.15	45.05
	Rice-bran (Milano)	⁽⁸⁾ 80.00 ^(*)	80.00	63.00	63.00	60.85	52.50	58.75	50.60
	Linseed cake (Milano)	⁽⁴⁾ 81.00 ^(*)	81.00 ^(*)	81.00 ^(*)	81.00	85.50	85.50	85.50	83.95
	Groundnut cake (Milano) (4)	65.00	65.00	59.00	55.00	55.00	73.50	55.00	65.30
	Rapeseed cake (Milano)	⁽⁴⁾ 36.00 ^(*)	36.00 ^(*)	36.00 ^(*)	36.00 n.	36.50	36.50	36.50	36.50
NETHERLANDS (Prices in florins per quintal)									
A I	Wheat	9.70	9.55	9.40	10.20	9.56	9.31	* 9.98	* 9.84
	Rye (Groningen)	7.52	7.23	7.17	7.30	7.36	8.00	* 7.12	* 8.12
	Barley (Groningen)	⁽⁹⁾ 8.05 ^(*)	7.80 ^(*)	7.82	6.98	7.17	7.76	7.03	7.48
	Oats (Groningen)	6.20	5.96	6.19	6.07	5.92	7.13	6.17	7.07
	Peas (Rotterdam)	11.00	11.00	11.72	12.31	15.61	14.07	* 14.69	* 13.53
	Flax, fibre (Rotterdam)	72.50	71.00	70.00	65.67	71.33	67.33	* 68.73	66.96
	§Potatoes (Amsterdam)		3.66	3.67	⁽¹⁰⁾ 4.06	3.76	3.41	5.14	3.66
A II	§Beef, dead weight (Rotterdam)	72.50	70.00	72.00	73.33	75.33	60.83	76.29	66.75
	†Pigs, live weight (Rotterdam)	50.00	51.00	53.00	53.33	62.33	43.00	57.29	43.54
	†Butter for export (Leeuwarden)	83.00	75.75	74.25	77.42	92.66	66.00	84.50	66.10
	†Cheese, Edam 40 % (Alkmaar)	41.20	45.12	46.88	43.04	43.99	32.91	42.23	35.15
	Cheese, Gouda 45 % (Gouda)	54.00	55.50	54.62	50.35	58.70	44.87	53.60	44.00
	†Eggs, for export (Roermond) per 100	4.24	4.37	4.50	3.82	4.48	4.16	3.62	3.39
B I	Basic slag (5)	0.141	0.141	0.139	0.123	0.104	0.130	* 0.109	* 0.115
	Superphosphate, 17 %	2.07	2.07	2.07	2.03	2.32	* 2.05	* 2.29	* 2.05
	Kainite (5)	0.118	0.118	0.118	0.115	0.127	* 0.107	* 0.123	* 0.106
	Nitrate of soda, 15 1/2-16 %	6.25	6.12	6.12	6.03	n. q.	5.83	* 6.31	6.00
	Sulphate of ammonia, 20 1/2 %	5.40	5.23	5.23	4.97	5.25	4.93	5.31	5.09
B II	Maize (Rotterdam)	8.45	7.51	7.69	7.95	6.87	6.83	7.39	6.69
	Linseed cake, Dutch	8.40	8.60	9.10	9.14	9.10	8.52	8.91	8.08
	Coconut cake, Dutch	7.65	7.80	8.10	8.19	8.42	7.63	8.51	7.56
	Groundnut cake, Dutch	7.65	7.80	8.00	8.01	7.96	8.27	7.87	7.88
POLAND (Prices in zlotys per quintal)									
A I	Wheat (Warszawa)	21.28	20.96	21.18	23.90	30.02	25.98	29.31	27.14
	†Rye (Warszawa)	14.35	14.50	14.78	16.80	24.07	19.18	22.80	20.75
	Barley (Warszawa)	16.82	15.43	15.56	16.39	21.11	22.20	20.24	22.04
	Oats (Warszawa)	15.55	15.84	15.65	17.75	22.67	16.85	22.25	19.11
	Potatoes (Warszawa)	* 4.25	3.96	3.75	4.37	3.96	3.88	* 4.08	* 3.78
A II	Oven live weight (Warszawa)	68.00	70.75	75.50	75.00	72.83	63.00	71.89	68.20
	Pigs, live weight (Warszawa)	95.20	94.00	96.75	97.57	98.68	89.50	98.26	94.42
	Butter (Warszawa)	330.00	321.00	309.00 ⁽¹¹⁾	280.67	340.67	299.66	317.50	289.75
	†Eggs, (Warszawa) per 100	11.05	9.63	8.56 ⁽¹²⁾	7.19	10.54	9.21	8.55	7.36

*. †. §: see notes on page 76.

(1) See note in Crop Report July 1938, p. 681 (the farm price for hard wheat is 150 lire instead of 140 l. as indicated). — (2) See note in the Crop Report of Oct. 1938, p. 979. — (3) Before Feb. 1938, pigs weighing more than 150 kg.; subsequently, pigs of more than 180 kg. — (4) Price free at producer's station. — (5) Price per kg. of active fertilizer in 100 kg. of commercial fertilizer. — (6) Price of new crop oil, valid as from Nov. 19, 1938; the price of 698.00 lire remained in force up to Nov. 18. — (7) Revised price: Sept.: 135.00. — (8) Free at mill. — (9) Spring barley. — (10) Sept. price: 3.67. — (11) Revised price: July 270.00. — (12) Revised prices: Sept.: 7.66; August: 6.92.

GROUPS	DESCRIPTION	AVERAGE							Agricultural year	
		Dec.	Nov.	Oct.	July-Sept.	Oct.-Dec.	Oct.-Dec.	Oct.-Dec.	1937-38	1936-37
		1938	1938	1938	1938	1937	1936			
B I	Superphosphate (1)	0.59	0.60	0.60	0.60	0.64	0.64	0.64	0.64	0.64
	Potash salts, 20 %	7.25	6.95	7.25	7.25	6.93	7.41	7.19	7.19	7.54
	Sulphate of ammonia	20.70	20.70	20.70	20.70	20.70	20.70	20.70	20.70	20.70
B II	Wheat-bran (Warszawa)	10.55	9.56	10.31	11.32	15.77	12.44	15.65	13.66	13.66
	Rye-bran (Warszawa)	10.15	8.75	8.81	9.94	15.19	12.41	14.71	13.42	13.42
	Linseed cake (Warszawa)	21.50	19.75	19.75	20.37	21.85	20.13	21.87	20.94	20.94
	Rapeseed cake (Warszawa)	13.80	13.00	13.00	13.42	19.14	16.59	17.95	16.78	16.78

POLAND (continued)

SWEDEN (Prices in Swedish crowns per quintal)

A I	Wheat (Stockholm)	16.85	17.00	17.15	* 17.56	19.64	18.52	* 20.15	* 19.09
	Rye (Stockholm)	16.45	16.50	16.65	* 16.90	18.90	17.79	* 18.79	* 18.15
	Barley . . . . .	...	13.36	13.69	* 14.20	17.97	15.28	* 17.97	* 15.47
	Oats (Stockholm)	10.90	11.10	12.28	12.75	14.70	12.94	* 14.68	* 14.44
A II	Cows, live weight (Stockholm) . . . . .	...	60.00	62.00	63.33	58.67	62.33	59.10	61.50
	Pigs, live weight (Göteborg) . . . . .	...	107.00	103.00	101.00	103.00	92.33	98.40	87.00
	Butter (Malmö) (1)	275.00	267.00	265.00	265.00	268.33	236.67	267.96	238.08
	Eggs (Stockholm)	155.00	180.00	174.00	137.83	177.50	167.55	137.20	132.62
B I	Superphosphate, 20 %	7.20	7.20	7.20	7.20	7.20	7.25	7.37	7.22
	Potash salts, 40 %	12.10	12.10	12.10	12.10	12.60	13.10	12.72	12.72
	Nitrate of soda, 15 1/2 % - 16 %	17.65	17.65	17.65	17.65	17.05	16.60	17.39	17.11
	Nitrate cyanamide, 15 1/2 %	16.95	16.95	16.95	16.95	16.35	15.60	16.61	16.11
B	Maize, Plata	17.42	16.66	17.00	16.03	17.12	16.48	16.92	16.29
	Wheat-bran	12.75	12.64	13.97	13.84	14.10	14.09	14.14	14.39
	Groundnut cake	20.50	20.50	20.50	19.68	19.97	20.32	19.52	19.91
	Cottonseed cake	19.75	19.68	19.90	19.08	19.56	19.18	18.98	19.15
	Soya meal	20.55	20.62	20.74	19.70	19.51	19.08	19.08	19.14

CZECHO-SLOVAKIA (Prices in Czech. crowns per quintal)

A I	Wheat (Prahá) (2)	163.00	162.50	162.00	* 161.25	162.50	162.50	* 164.45	* 166.35
	Rye (Prahá) (2)	143.00	142.50	142.00	* 140.00	136.50	126.50	* 138.50	* 130.20
	Barley, malting (Prahá) (2)	134.00	133.00	132.00	* 130.50	133.00	138.35	* 133.65	* 135.00
	Oats (Prahá) (2)	121.50	120.50	120.00	* 119.25	120.65	114.00	* 122.10	* 117.10
	Potatoes, edible (Prahá) . . . . .	...	...	...	42.35	21.50	26.20	28.35	28.85
	Hops (Zatec) . . . . .	...	...	...	1,683.35	1,665.00	1,836.35	1,886.25	1,868.65
A II	Beef, dead weight (Prahá) . . . . .	...	...	...	875.00	979.00	1,116.65	999.75	1,084.35
	Veal, dead weight (Prahá) . . . . .	...	...	...	708.35	800.00	900.00	763.50	898.95
	Pork, dead weight (Prahá) . . . . .	...	...	...	944.15	930.00	1,013.35	867.65	967.20
	Butter (Prahá) . . . . .	...	...	...	2,008.35	1,925.00	1,541.65	1,889.60	1,645.85
	Eggs (Prahá) per 100 . . . . .	...	...	...	53.85	66.10	64.70	57.55	56.65
B I	Basic slag, 15 % . . . . .	...	...	...	...	35.75	34.85	35.95	35.15
	Superphosphate, 16-18 % . . . . .	...	...	...	...	53.15	48.50	54.00	49.65
	Kainite, 14 % . . . . .	...	...	...	...	24.40	22.05	24.00	22.80
	Nitrate of soda . . . . .	...	...	...	...	n. q.	n. q.	* 138.00	* 138.00
	Sulphate of ammonia, 20 1/2 % . . . . .	...	...	...	...	121.05	119.40	122.40	122.00
B II	Maize, imported . . . . .	...	...	...	109.35	108.50	107.00	108.75	107.30
	Wheat-bran (Prahá) (4)	105.00	105.00	105.00	105.00	105.00	105.00	105.00	105.00
	Rye-bran (Prahá) (4)	103.00	103.00	103.00	103.00	103.00	103.00	103.00	103.00
	Crushed soya (Prahá, delivered Lovosice) (4)	142.00	142.00	142.00	142.00	142.00	142.00	142.00	142.00
	Rapeseed cake (Prahá, delivered Lovosice) (4)	117.50	117.50	117.50	117.50	117.50	117.50	117.50	117.50
	Linseed cake (Prahá, delivered Lovosice) (4)	139.50	139.50	139.50	139.50	139.50	139.50	139.50	139.50
	Groundnut cake (Prahá, delivered Strekov) (4)	150.00	150.00	150.00	150.00	150.00	150.00	150.00	150.00

*† See notes on p. 76.

(1) Prices per kg. of active fertilizer in 100 kg. of commercial fertilizer. — (2) Prices for the home market. — (3) Producers' fixed prices, f.o.r. Prahá; see also note in Crop Report, August 1938, p. 781. — (4) Wholesalers' selling prices. — (5) Sept.: 63.00. — (6) Sept.: 103.00.

AVERAGE MONTHLY PRICES IN GOLD FRANCS PER QUINTAL ⁽¹⁾

DESCRIPTION	Dec.	Nov.	Oct.	Sept.	Aug.	July	Dec.	Dec.	Year	
	1938	1938	1938	1938	1938	1938	1937	1936	1938	1937
Wheat.										
Budapest: Tisza	12.31	12.45	12.46	12.26	12.15	12.44	12.62	11.67	12.89	12.42
Winnipeg: No. 1 Manitoba	6.76	6.62	6.86	7.03	8.53	10.92	15.55	13.81	11.35	15.02
Chicago: No. 2 Hard Winter	7.48	7.51	7.65	7.51	7.52	8.18	11.08	15.31	9.01	13.81
Buenos Aires: No. 2 Hard	5.76	6.03	6.46	6.89	7.72	8.86	11.94	11.22	9.15	13.58
Karachi: White Karachi	8.52	7.35	7.63	7.69	7.99	8.60	11.37	12.14	8.77	12.10
Berlin: Home-grown	25.32	25.07	24.82	24.58	24.33	25.56	25.44	25.68	25.29	25.37
Hamburg (c. i. f.):										
Manitoba No. 1	9.74	9.18	9.52	9.65	11.08	13.50	19.34	16.53	* 13.91	18.03
Barusso	7.74	7.95	8.63	9.05	10.05	11.30	14.15	13.74	11.37	15.56
Antwerpen:										
No. 1 Manitoba (Atlantic)	9.21	8.77	10.53	12.16	13.71	13.24	18.80	16.21	14.74	17.60
Bahia (?)	8.10	7.77	9.21	9.48	10.48	11.72	16.09	13.88	11.66	15.94
Paris: Home grown	16.47	16.39	16.43	16.52	16.73	16.69	19.12	20.95	17.17	20.19
Liverpool and London (c. i. f.):										
No. 1 North. Manitoba (Pacific)	8.59	8.30	8.63	8.80	9.55	12.87	19.00	16.44	13.19	17.67
No. 3 North. Manitoba (Pacific)	7.94	7.71	8.08	8.00	8.89	12.29	15.85	15.71	11.78	16.16
No. 2 Hard Winter	6.99	n. q.	7.79	n. q.	9.63	11.17	13.77	n. q.	* 11.48	* 15.18
Rosafé	7.38	7.48	8.11	8.63	9.53	11.08	13.84	13.63	10.93	* 14.37
Choice White Karachi	n. q.	n. q.	n. q.	8.58	9.70	10.47	13.05	15.22	* 10.80	14.97
West Australia (cargoes)	7.60	7.77	8.77	9.12	9.72	11.06	13.04	15.50	10.61	15.24
Milano: Home-grown, soft	23.83	23.83	23.83	23.83	23.83	23.83	22.22	19.97	23.16	21.19
Rye.										
Berlin: Home-grown	23.09	22.85	22.60	22.35	22.11	21.86	23.46	21.11	22.87	22.01
Hamburg: Plata	n. q.	n. q.	n. q.	n. q.	n. q.	n. q.	13.07	11.53	* 14.08	* 14.59
Budapest: Home-grown	8.57	8.97	9.20	9.02	8.91	9.74	11.46	9.84	10.19	11.65
Warszawa: Home-grown	8.34	8.43	8.59	8.49	8.90	11.92	13.92	11.76	10.81	14.16
Minneapolis: No. 2 rye	5.15	4.86	5.08	5.02	5.00	5.81	8.38	13.27	6.50	11.17
Barley.										
Braila: Home-grown	8.03	7.43	6.50	6.40	6.53	6.67	8.40	7.37	7.79	* 7.96
Praha: Home-grown, malting	14.06	13.95	13.95	13.85	13.74	n. q.	14.40	16.42	14.20	* 14.45
Winnipeg: No. 4 Western	4.84	4.55	4.78	4.58	5.00	6.21	7.98	10.12	6.49	9.20
Minneapolis: No. 2 Feeding	5.69	5.46	5.78	5.52	5.24	5.89	7.70	12.56	6.62	9.29
Berlin: Home-grown, fodder	21.24	20.99	20.87	20.62	20.38	20.13	21.24	20.74	20.98	21.16
Antwerpen: Danubian	8.10	7.17	7.78	8.47	9.11	9.91	10.88	11.66	9.76	11.48
Liverpool and London (c. i. f.):										
No. 3 Canadian Western	7.98	7.16	7.51	7.30	7.87	9.14	11.85	n. q.	9.35	* 11.86
Plata	n. q.	n. q.	n. q.	n. q.	n. q.	n. q.	10.76	10.38	* 11.44	11.17
Iraqutan	7.72	6.81	6.96	6.99	7.38	8.41	10.90	10.38	8.77	10.74
Oats.										
Winnipeg: No 2 White	5.60	5.54	5.60	5.82	6.19	8.14	9.75	10.05	8.20	10.78
Chicago: No 2 White	6.62	5.90	5.69	5.85	5.48	5.82	6.98	11.02	6.34	9.25
Buenos Aires: No 2 White	4.58	5.10	5.34	5.39	5.87	6.06	6.31	5.94	6.01	6.41
Berlin: Home-grown	21.49	21.37	21.24	20.50	20.99	20.50	20.62	20.25	21.15	20.74
Paris: Home-grown	7.64	7.83	8.40	8.81	9.35	11.33	13.08	17.31	10.52	15.24
London and Liverpool (c. i. f.): Plata	6.31	6.75	6.79	6.97	7.40	7.72	8.37	8.34	7.61	8.82

(1) The gold franc adopted is that of the former Latin Monetary Union. Up to the end of September 1936, prices in gold francs were obtained by converting original prices into Swiss francs, as these could still be regarded as gold francs. Since the devaluation of the Swiss franc (26 September 1936) original prices have been converted into American dollars, and multiplied by 3.061, which is the coefficient existing between the current dollar and the former franc of the Latin Monetary Union. In cases where the difference between the rates of exchange of the national currency considered, and parity with the dollar did not, during a given month, reach $2\frac{1}{2}\%$, the monthly average has been converted on the basis of parity. In other cases the average rate of exchange for the month has been utilized. — (2) Before August 1937: "Barusso".

DESCRIPTION	Dec.	Nov.	Oct.	Sept.	Aug.	July	Dec.	Dec.	Year	
	1938	1938	1938	1938	1938	1938	1937	1936	1938	1937
Maize.										
Braila: Home-grown	9.09	7.43	6.84	8.24	8.10	7.69	6.66	5.41	* 7.78	* 6.76
Chicago: No. 3 Yellow	6.16	5.47	5.57	6.33	6.42	7.00	6.88	12.95	6.58	12.39
Buenos Aires: Yellow Plata	6.94	5.77	6.03	6.16	6.60	7.75	8.82	5.74	7.77	6.87
Liverpool and London (c. l. f.):										
Yellow Plata	8.66	7.58	7.75	8.16	8.58	9.55	10.51	8.01	* 9.40	* 9.18
No. 2 White African	n. q.	n. q.	n. q.	n. q.	n. q.	n. q.	10.05	n. q.	* 10.40	* 9.49
Milano: Home-grown	14.49	14.49	14.49	14.49	14.49	14.49	13.85	13.53	14.10	13.32
Rice.										
Milano: Originario	26.12	26.25	26.65	26.01	25.77	25.77	25.04	19.49	25.55	21.98
Rangoon: No. 2 Europe (Burma)	6.72	8.33	9.05	9.13	9.47	9.02	8.55	8.96	8.41	8.83
Saigon: No. 1 Round white	7.01	8.52	9.58	9.95	9.97	9.75	9.60	10.41	9.34	9.54
London (c. l. f.):										
No. 2 Burma	9.87	10.21	13.01	13.18	13.45	13.09	13.11	13.34	12.19	13.72
No. 1 Saigon	9.17	10.06	12.92	13.12	12.99	13.00	12.54	14.26	12.47	13.75
Tokyo: Tyumai . . . . .	...	19.79	20.00	20.55	20.75	20.76	20.29	17.55	...	19.52
Cotton.										
New Orleans: Middling	57.29	58.78	57.97	54.19	56.69	60.33	56.35	85.70	58.99	76.31
Bombay (futures): Broach, f.g.	47.66	47.88	47.26	47.71	45.42	48.45	54.33	71.26	50.46	65.94
Alexandria: Sakellaris, f.g.f.	83.08	92.02	92.82	85.71	89.13	89.05	105.13	129.41	90.38	124.34
Liverpool:										
Middling American	67.57	67.85	69.13	64.89	65.86	69.47	66.87	95.62	67.84	88.48
Broach, f.g.	n. 51.96	n. 52.08	n. 51.44	n. 50.53	n. 52.28	n. 54.36	n. 54.37	n. 76.44	n. 53.57	n. 71.77
Sakellaris, f.g.f.	100.90	110.66	110.79	106.61	106.48	108.58	113.80	144.47	109.98	136.86
Beef.										
Berlin: Home-grown (live weight)	107.69	109.91	108.93	106.21	106.21	103.74	102.74	103.74	104.81	103.92
Paris: Home-grown (dead weight)	68.69	71.36	73.23	68.91	71.75	69.82	98.93	101.32	78.19	105.87
London: Home-grown (dead weight)	92.66	91.10	92.51	95.24	112.33	110.93	109.75	* 89.25	104.77	103.99
Mutton.										
Paris: Home-grown (dead weight)	121.60	119.47	122.57	114.59	117.25	107.18	131.67	153.04	118.19	145.28
London: Home-grown (dead weight)	91.02	86.14	89.58	93.55	96.90	102.26	115.02	* 115.55	99.31	133.21
Pork.										
Denmark: Home-grown (dead weight)	105.83	104.31	112.28	113.75	118.68	122.65	117.09	109.23	117.30	115.20
Rotterdam: Home-grown (live weight)	83.18	84.86	88.23	87.68	90.25	89.51	107.22	72.62	90.89	89.76
Berlin: Home-grown (live weight)	124.73	124.73	124.73	129.92	132.14	127.95	124.73	124.73	125.56	124.77
Paris: Home-grown (live weight)	73.28	73.54	71.68	73.28	72.51	71.26	70.46	87.21	73.28	79.69
London: Home-grown (dead weight)	116.44	115.95	114.70	118.95	111.90	110.93	129.07	121.16	117.28	117.04
Bacon.										
London:										
English, No. 1, lean sizable	137.77	127.44	136.71	143.69	148.11	155.63	147.77	136.63	146.00	140.67
Danish No. 1, sizable	136.60	127.09	139.23	143.69	148.48	155.63	147.27	136.01	146.28	140.15

DESCRIPTION	Dec.	Nov.	Oct.	Sept.	Aug.	July	Dec.	Dec.	Year	
	1938	1938	1938	1938	1938	1938	1937	1936	1938	1937
Butter.										
Köbenhavn: Danish	165.75	159.21	150.04	159.96	153.51	147.59	189.14	128.10	153.83	151.84
Leeuwarden: Dutch	138.09	126.04	123.61	129.04	127.44	131.73	142.31	108.51	135.22	130.90
Germany: Butter with National mark. .	338.39	338.39	329.74	321.10	321.10	321.10	321.10	321.10	324.70	321.10
London:										
Danish	202.55	196.31	186.95	196.54	190.75	184.60	228.30	167.18	191.35	189.35
Argentine	141.99	134.90	n. q.	158.44	n. q.	n. q.	162.82	138.11	148.98 *	139.78
Australian, salted	150.42	146.97	158.60	167.39	172.74	177.67	167.09	144.27	169.20	163.38
New Zealand, salted	153.82	153.47	164.34	173.56	177.88	180.14	169.85	146.61	172.59	164.51
Cheese.										
Milano: Parmigiano-Reggiano	187.13	185.68	162.65	160.72	199.69	198.08	185.20	136.88	185.10	155.09
Alkmaar: Edam 40 +	68.54	75.08	78.05	75.44	71.23	69.08	70.80	52.59	71.84	66.48
Kempton: Emmenthal	197.60	197.60	197.60	197.60	197.60	197.60	197.60	197.60	197.60	197.60
London:										
English Cheddar	127.69	126.73	127.38	127.48	125.70	126.29	143.63	128.62	135.31 *	133.27
Canadian	100.51	102.12	103.82	103.90	116.14	117.37	109.38	105.21	110.93	109.55
New Zealand	97.23	97.39	102.51	105.35	104.75	102.64	98.97	90.80	102.32	99.11
Eggs (per 100).										
Denmark: Danish, for export (per quintal)	79.69	94.33	97.90	94.79	82.67	79.18	113.31	* 85.34	77.72	73.92
Roermond: Dutch, for export	7.05	7.27	7.49	6.92	6.22	6.01	8.25	6.71	6.14	6.11
Warszawa: Polish, average quality . . .	6.42	5.59	4.98	4.45	4.02	4.07	6.62	5.81	4.83	4.72
Berlin: German, marked "GIB"	15.44	14.05	12.66	12.66	12.66	12.66	12.66	11.44	13.01	11.83
London:										
English	13.19	14.65	14.52	13.21	11.88	10.89	15.13	13.95	11.04	10.88
Danish	8.83	9.52	9.39	8.60	7.99	7.43	11.26	9.18	7.84	7.71
Dutch	10.17	10.63	10.19	9.48	8.76	8.37	11.63	10.69	8.89	8.88

EXCHANGE RATES

RELATION OF VARIOUS CURRENCIES TO THEIR PARITY WITH THE U. S. DOLLAR (1)

NATIONAL CURRENCIES	Parity	Actual Exchange Rates					Percentage deviation from parity with U.S. dollar: premium (+) or discount (—)				
		Jan. 13 1939	Jan. 6 1939	Dec. 30 1938	Dec. 23 1938	Dec. 16 1938	Jan. 13 1939	Jan. 6 1939	Dec. 30 1938	Dec. 23 1938	Dec. 16 1938
Germany: reichsmark	40.332	40.112	40.087	40.081	40.087	40.087	— 0.5	— 0.6	— 0.6	— 0.6	— 0.6
Argentina: paper peso	71.959	n.31.126	n.30.977	n.31.023	n.31.102	n.31.148	— 56.7	— 57.0	— 56.9	— 56.8	— 56.7
Belgium: belga	23.542	16.898	16.869	16.844	16.848	16.840	— 28.2	— 28.3	— 28.5	— 28.4	— 28.5
Canada: dollar	16.950	16.898	16.869	16.844	16.848	16.840	— 0.3	— 0.5	— 0.6	— 0.6	— 0.6
Denmark: crown	100.000	99.117	99.047	98.984	99.000	99.060	— 0.9	— 1.0	— 1.0	— 1.0	— 0.9
Spain: peseta	45.374	20.840	20.761	20.764	20.821	20.842	— 54.1	— 54.2	— 54.2	— 54.1	— 54.1
France: franc (1)	32.669	n.4.524	n.4.674	4.957	n.4.974	n.4.974	— 86.2	— 85.7	— 84.8	— 84.8	— 84.8
Great Britain: £ sterling (2)	6.633	2.632	2.630	2.631	2.634	2.630	— 60.3	— 60.3	— 60.3	— 60.3	— 60.3
Hungary: pengő	8.2397	4.6695	4.6521	4.6526	4.6653	4.6701	— 43.3	— 43.5	— 43.5	— 43.4	— 43.3
India: rupee	29.612	n.19.655	n.19.655	n.19.650	n.19.637	n.19.637	— 33.6	— 33.6	— 33.6	— 33.7	— 33.7
Italy: lira	61.798	34.878	34.725	34.743	34.826	34.867	— 43.6	— 43.8	— 43.8	— 43.6	— 43.6
Japan: yen	8.911	5.260	5.260	5.261	5.260	5.260	— 41.0	— 41.0	— 41.0	— 41.0	— 41.0
Netherlands: florin	5.263	5.260	5.260	5.261	5.260	5.260	— 0.1	— 0.1	— 0.0	— 0.1	— 0.1
Poland: zloty	84.596	27.208	27.086	27.115	27.192	27.217	— 67.8	— 67.9	— 67.9	— 67.8	— 67.8
Romania: leu	68.057	54.317	54.377	54.377	54.336	54.334	— 20.2	— 20.1	— 20.1	— 20.2	— 20.2
Sweden: crown	18.994	18.905	18.905	18.900	18.892	18.857	— 0.5	— 0.5	— 0.5	— 0.5	— 0.7
Switzerland: franc	1.013	n.0.731	n.0.731	n.0.731	n.0.731	n.0.731	— 27.8	— 27.8	— 27.8	— 27.8	— 27.8
Czechoslovakia: crown	45.374	24.039	23.947	23.953	24.019	24.047	— 47.0	— 47.2	— 47.2	— 47.1	— 47.0
	32.669	22.595	22.577	22.562	22.577	22.606	— 30.8	— 30.9	— 30.9	— 30.9	— 30.8
	5.016	3.426	3.426	3.427	3.427	3.420	— 31.7	— 31.7	— 31.7	— 31.7	— 31.8
	3.512	3.426	3.426	3.427	3.427	3.420	— 2.4	— 2.4	— 2.4	— 2.4	— 2.6

(1) Parities and current rates are both expressed in U. S. cents (the £ sterling is expressed in dollars). The dollar contains 0.88867 grams of fine gold, i. e. 40.94 % less than formerly. — (2) Former parity. — (3) New parity as from 31 March 1935. — (4) 1 Indochinese piastre = 10 francs; the actual rates vary only slightly from this. — (5) Quotations for the Egyptian pound are omitted, its relationship with the £ sterling being fixed (97 1/2 piasres = 1 £ sterling). — (6) New parity as from Oct. 5, 1936. — (7) New parity as from Oct. 10, 1936.

**INDEX-NUMBERS OF PRICES OF AGRICULTURAL PRODUCTS
AND OF COMMODITIES BOUGHT BY THE FARMER (2)**

DESCRIPTION	Dec.	Nov.	Oct.	Sept.	Aug.	July	Dec.	Dec.	YEAR	
	1938	1938	1938	1938	1938	1938	1937	1936	1937-38 (3)	1936-37 (5)
Germany										
(Statistisches Reichsamt; products sold by farmers)										
Average for corresponding months 1909-10/1913-14 = 100.										
Cereals	112	111	109	108	110	100	113	109	110	105
Edible potatoes.	111	108	108	110	135	145	106	106	114	115
Plant products	112	111	109	108	116	118	113	109	111	107
Meat animals.	95	94	92	93	94	96	93	94	95	94
Livestock products (butter and eggs). .	108	106	104	106	110	118	102	102	109	108
Livestock and livestock products . .	99	97	96	97	99	103	96	96	99	99
Total agricultural products	103	102	100	100	104	106	101	100	102	101
Germany										
(Statistisches Reichsamt; wholesale products)										
1913 = 100.										
Foodstuffs of plant origin	115.2	114.7	114.2	113.8	116.1	116.7	115.0	112.8	115.0	114.1
Livestock	90.4	90.5	89.9	90.0	90.9	89.1	87.0	86.7	87.2	89.4
Livestock products	115.8	115.2	112.5	112.4	112.4	111.8	111.1	110.1	109.4	109.4
Feedingstuffs.	108.2	107.3	106.8	107.1	106.8	105.8	105.5	105.1	106.0	107.5
Total agricultural products	107.2	106.8	105.7	105.6	106.6	106.0	104.6	103.6	104.6	104.9
Fertilizers	55.1	53.4	54.5	54.3	53.7	52.6	55.5	65.3	57.0	66.8
Agricultural dead stock	110.8	110.9	110.9	110.9	110.9	110.9	112.7	112.7	112.7	111.6
"Konsumgüter" (3)	135.1	135.0	135.1	135.1	135.5	135.6	135.8	130.5	133.2	127.3
Wholesale products in general. . . .	106.3	106.1	105.7	105.6	105.9	105.6	105.5	105.0	105.2	104.1
England and Wales (3)										
(Ministry of Agriculture and Fisheries)										
Average 1927-1929 = 100.										
(a) DATA UNCORRECTED FOR SEASONAL VARIATION										
Cereals and farm crops	76	75	77	77	82	96	...	...	...	...
Livestock and livestock products . .	98	98	93	86	84	87	...	...	...	...
Total agricultural products	94	94	91	84	84	88	102	95	...	...
Wholesale products in general (4) . .	84.2	84.3	84.9	84.3	85.3	86.2	92.2	86.4	93.1	80.9
(b) DATA CORRECTED FOR SEASONAL VARIATION										
Cereals and farm crops	77	75	75	77	80	96	...	...	...	...
Livestock and livestock products . .	88	89	88	88	90	96	...	...	...	...
Total agricultural products	86	86	86	86	89	96	94	88	...	...

(1) For an explanation of the method of calculating the index-numbers, reference should be made to the Institute's publication *Index-numbers of Prices of Agricultural Products and other Price-indices of Interest to the Farmer* (Rome, 1930) and to the Crop Reports, January 1932, pages 77 to 79; July 1932, page 502; March 1934, page 231; December 1934, page 996. — (2) Durable manufactured goods, not directly used for production. — (3) Index-numbers taking account of payments under the Wheat Act, the Cattle Subsidy Act, and Government payments for milk. — (4) Index-numbers of the Board of Trade, reduced to base 1927-1929 = 100. — 5) Agricultural year, July 1-June 30.

DESCRIPTION	Dec.	Nov.	Oct.	Sept.	Aug.	July	Dec.	Dec.	YEAR	
	1938	1938	1938	1938	1938	1938	1937	1936	1937	1936
Argentina										
(Banco Central de la Republica Argentina)										
1926 = 100.										
Cereals and linseed	77.2	70.9	73.2	75.3	80.1	89.6	105.3	86.5	101.3	82.6
Meat	85.7	88.0	89.6	92.8	95.0	97.0	101.4	82.1	93.6	91.2
Hides and skins	87.9	88.0	93.2	78.7	77.2	78.5	93.2	115.8	118.6	91.0
Wool	84.9	88.9	87.6	88.1	89.6	93.6	106.5	145.1	143.7	107.6
Dairy products	63.1	67.5	73.6	82.2	82.3	82.3	82.6	86.9	93.7	84.1
Forest products	100.5	100.9	100.6	100.5	98.2	99.9	99.1	99.0	89.6	96.3
Total agricultural products	80.1	76.6	78.8	79.6	83.0	90.1	102.9	93.1	105.1	86.6
Non-agricultural commodities . . . . .	..	..	108.0	107.2	107.4	107.6	113.9	105.0	114.4	102.5
Wholesale products in general . . . . .	..	..	101.8	101.4	102.3	104.0	111.7	102.6	112.6	99.2
Australia (Commonwealth)										
(Commonwealth Bureau of Census and Statistics)										
1928-29 = 100.										
Agricultural field products	78.1	..	..	78.2	83.6	89.0	89.1	104.9	93.1	98.0
Pastoral products	66.6	..	..	78.4	81.5	78.6	78.3	87.6	81.4	89.1
Farmyard and dairy products	87.4	..	..	83.4	83.5	83.2	77.5	73.4	77.8	73.1
Total agricultural products	74.4	..	..	..	..	..	..	..	..	..
Belgium										
(Belgische Boerenbond — Boerenbond belge)										
Average of corresponding months 1909-1914 = 100.										
Field products . . . . .	..	487	485	471	483	530	588	546	577	508
Livestock products . . . . .	..	725	734	719	699	678	686	591	617	576
Total agricultural products . . . . .	..	650	656	641	631	632	655	577	604	555
Rent . . . . .	..	650	650	650	650	650	650	635	647	605
Agricultural wages . . . . .	..	900	900	900	900	900	870	815	851	778
Fertilizers . . . . .	..	476	473	464	467	463	469	437	443	427
Feedingstuffs . . . . .	..	540	565	569	595	657	651	591	610	513
Total production expenses (including those not specified) . . . . .	..	744	748	748	754	766	754	731	736	689
Canada										
(Dominion Bureau of Statistics, Internal Trade Branch)										
1926 = 100.										
Field products (grain, etc.)	53.8	54.6	53.6	53.4	54.9	65.9	83.9	83.4	88.3	65.8
Livestock and livestock products	82.8	82.1	81.0	81.1	79.7	80.3	84.6	80.8	85.0	75.3
Total Canadian farm products	64.6	64.9	63.8	63.8	64.2	71.5	84.2	82.4	87.1	69.4
Fertilizers	82.8	82.8	82.8	82.8	82.8	81.1	75.2	74.2	74.5	74.5
Consumers' goods (other than foodstuffs, beverages and tobacco)	76.7	76.7	76.8	77.3	76.9	77.0	78.3	76.5	78.4	75.5
Wholesale products in general	73.3	73.5	71.1	74.5	76.0	78.6	82.7	79.6	84.6	74.6

(1) Year July 1-June 30.

DESCRIPTION	Dec.	Nov.	Oct.	Sept.	Aug.	July	Dec.	Dec.	YEAR	
	1938	1938	1938	1938	1938	1938	1937	1936	1937	1936
Chili										
(Dirección General de Estadística)										
1913 = 100										
Cereals . . . . .	...	560.6	603.8	600.0	590.4	573.5	515.5	433.8	572.3	402.8
Other plant products . . . . .	...	373.9	362.6	379.5	381.9	394.8	354.4	344.3	375.3	318.7
Meat animals . . . . .	...	369.7	380.4	408.0	419.3	413.8	389.7	334.4	381.2	308.5
Meat . . . . .	...	317.6	345.0	352.9	376.7	358.0	353.6	270.8	316.2	247.7
Total agricultural products . . . . .	...	424.7	435.9	446.7	448.4	447.4	406.6	363.3	430.0	336.3
Domestic industrial products . . . . .	...	473.9	478.1	482.3	479.4	476.4	473.5	421.1	489.4	401.8
Wholesale products in general . . . . .	...	508.7	513.6	519.0	519.4	518.3	509.8	461.4	522.6	436.1
United States										
(Bureau of Agricultural Economics)										
Average 1909-10 to 1913-14 = 100.										
Cereals	63	60	60	63	62	72	86	134	126	108
Cotton and cottonseed	70	73	72	69	69	71	64	105	95	100
Fruits	73	71	70	75	78	79	76	93	122	100
Truck crops (market garden crops)	107	98	108	98	91	115	112	92	123	111
Meat animals	109	111	111	117	115	123	111	122	132	121
Dairy products	112	109	107	104	102	101	136	127	124	119
Chickens and eggs	127	131	124	118	105	103	127	133	111	115
Miscellaneous	108	95	107	98	99	87	118	168	130	121
Total agricultural products	96	94	95	95	92	95	104	126	121	114
Commodities purchased ⁽¹⁾	120	121	121	121	122	123	126	128	135	126
Agricultural wages ⁽¹⁾	117	—	118	—	—	120	(²) 111	(²) 103	120	107
United States										
(Bureau of Labor)										
1926 = 100.										
Cereals	54.4	50.9	50.8	53.0	53.4	58.3	71.5	109.0	98.3	88.1
Livestock and poultry	74.4	75.2	76.2	81.0	80.6	84.4	78.4	85.0	95.5	84.8
Other farm products	66.5	67.4	65.0	64.0	62.6	63.0	69.3	84.4	77.2	76.0
Total agricultural products	67.6	67.8	66.8	68.1	67.3	69.4	72.8	88.5	86.4	80.9
Agricultural implements	93.5	93.7	95.4	95.5	95.5	95.9	96.1	93.0	94.0	94.1
Fertilizer materials	68.6	67.7	67.5	67.2	67.3	66.9	72.0	68.6	71.2	65.9
Mixed fertilizers	73.8	73.2	73.4	73.4	74.2	72.9	74.4	71.4	73.2	68.3
Cattle feed	76.6	70.5	66.5	67.6	67.0	76.8	81.7	130.7	111.5	94.0
Non-agricultural commodities	79.0	79.5	79.9	80.4	80.3	80.8	83.5	83.1	86.2	80.7
Wholesale products in general	77.0	77.5	77.6	78.3	78.1	78.8	81.7	84.2	86.3	80.8
Finland										
(Central Bureau of Statistics)										
1926 = 100.										
Cereals	90	89	91	93	94	95	104	104	110	91
Potatoes	100	95	89	89	118	106	74	59	70	74
Fodder	71	68	68	68	65	69	80	65	73	64
Meat	92	88	86	95	102	102	87	80	84	80
Dairy products	100	101	99	98	94	91	97	83	89	82
Total agricultural products	91	90	89	91	91	90	91	82	88	79
Wholesale products in general	98	98	98	97	98	97	102	95	102	92
Hungary										
(Central Bureau of Statistics)										
1913 = 100.										
Agricultural and livestock products	84	83	87	89	85	85	83	78	—	—
Wholesale products in general	85	94	97	99	96	96	95	92	—	—

(1) 1910-1914 = 100. — (2) January 1938 and 1937 respectively.

DESCRIPTION	Dec.	Nov.	Oct.	Sept.	Aug.	July	Dec.	Dec.	YEAR	
	1938	1938	1938	1938	1938	1938	1937	1936	1937	1936
Ireland										
(Department of Industry and Commerce)										
Average 1911-1913 = 100.										
Agricultural products in general. . .	...	113.9	116.3	114.1	111.4	112.1	108.3	98.9	104.9	90.6
Italy										
(Istituto Centrale di Statistica)										
1928 = 100.										
Plant products	89.3	89.9	91.3	92.2	93.0	91.2	82.6	73.2	79.7	68.4
Livestock products	86.3	87.9	87.8	87.0	82.5	81.8	103.0	81.6	91.1	74.7
Total agricultural products	88.2	89.0	90.0	90.4	89.6	88.1	88.1	75.6	82.8	70.1
Feedingstuffs	102.3	105.1	99.8	100.5	99.4	98.0	88.4	78.6	83.6	94.2
Fertilizers, and chemicals for plant diseases	100.0	99.7	99.4	100.2	100.8	100.9	100.6	79.6	94.2	77.8
Wholesale products in general. . . .	96.4	97.2	96.9	96.8	96.0	94.9	96.4	79.0	89.1	76.4
Lithuania										
(Lietuvos Bankas)										
1926-1929 = 100.										
Cereals . . . . .	...	...	38	39	39	40	41	39	46	37
Cattle, fowls . . . . .	...	...	53	52	52	52	49	44	49	40
Leather, hides, wool . . . . .	...	...	51	50	49	48	57	59	60	50
Meat, dairy products and eggs . . . .	...	...	47	45	45	45	49	45	44	38
Total agricultural products . . . . .	...	...	45	45	45	45	46	43	47	39
Wholesale products in general. . . .	...	...	51	51	50	51	51	48	51	45
Norway										
(Kgl. Selskap for Norges Vel)										
Average 1909-1914 = 100.										
Cereals	167	167	167	167	166	172	173	157	173	154
Potatoes	134	130	121	117	120	261	207	129	188	132
Pork	133	133	135	134	137	124	120	121	117	110
Other meat	171	165	167	182	198	198	189	148	187	148
Dairy products	179	177	175	175	172	171	172	139	165	139
Eggs	143	153	162	154	131	125	153	125	124	113
Concentrated feedingstuffs	157	161	161	162	161	161	152	128	152	130
Maize	158	155	156	157	156	158	153	132	149	130
Fertilizers	92	89	100	100	101	103	100	86	95	87
New Zealand										
(Census and Statistics Office)										
Average 1909-1913 = 100.										
Dairy products . . . . .	...	121.2	131.7	128.4	127.4	124.1	120.2	106.2	109.2	104.6
Meat . . . . .	...	181.9	169.0	171.1	170.3	168.8	188.9	178.1	165.1	159.6
Wool . . . . .	...	114.2	98.7	116.3	94.9	113.1	129.0	148.1	176.8	110.7
Other pastoral products . . . . .	...	89.2	93.8	93.9	89.6	83.7	153.7	138.4	153.5	123.9
All pastoral and dairy products . . .	...	134.9	132.5	135.6	130.0	131.8	144.3	137.5	142.3	122.8
Field products . . . . .	...	135.9	142.3	139.5	139.2	139.1	137.8	117.2	136.5	132.1
Total agricultural products . . . . .	...	135.0	132.8	135.7	130.2	132.0	144.1	136.9	142.2	123.9

(2) Agricultural year: April 1-March 31.

DESCRIPTION	Dec.	Nov.	Oct.	Sept.	Aug.	July	Dec.	Dec.	YEAR	
	1938	1938	1938	1938	1938	1938	1937	1936	1937-38	1936-37
									(¹)	(²)
Netherlands										
(Bureau of Agriculture)										
Average 1924-25 to 1928-29 = 100.										
Plant products	57	56	56	57	57	67	59	55	63	58
Livestock products	62	61	63	63	63	65	67	53	66	57
Total agricultural products	61	60	62	62	62	65	65	53	65	57
Wholesale products in general (¹) . .	70.6	70.2	70.9	70.5	70.8	71.3	75.6	71.0	²⁾ 76.2	²⁾ 63.8
Agricultural wages	74	74	74	74	74	74	68	68	69	68
Poland										
(Central Bureau of Statistics)										
1928 = 100.										
Raw plant products	36.3	35.3	35.7	35.9	38.1	47.9	50.0	43.2	53.4	38.1
Meat animals	42.4	40.9	44.4	45.7	44.1	43.5	40.7	39.5	43.5	38.7
Dairy products and eggs	52.1	53.1	48.6	46.6	41.4	43.4	52.5	43.1	48.2	40.4
Products directly sold by farmers . .	41.2	40.5	41.0	41.1	40.7	45.6	47.4	42.0	49.2	38.7
Flour and groats	44.7	43.7	43.7	45.1	46.7	51.8	53.7	49.6	55.9	41.2
Meat and lard-fat	47.3	46.6	48.9	50.9	49.7	49.0	47.3	44.3	48.1	44.3
Sugar, alcohol, beer	71.3	71.3	71.3	71.3	71.3	71.3	71.3	71.3	71.3	71.5
Products of agricultural industries . .	54.3	53.8	54.6	55.7	55.8	57.2	57.2	54.9	58.2	52.2
Total agricultural products	47.7	47.0	47.7	48.3	48.1	51.3	52.3	48.4	53.6	45.4
Commodities purchased	64.4	64.4	64.5	64.6	64.7	64.7	65.7	65.2	66.2	64.6
Wholesale products in general . . .	55.0	54.6	54.8	55.0	55.0	56.4	58.1	56.9	59.4	54.0
Sweden										
(Sveriges Allmänna Lantbrukssällskap)										
Average 1909-1913 = 100.										
Plant products	102	103	105	106	113	130	120	114	123	108
Meat animals	132	130	132	138	143	143	128	126	126	126
Dairy products	163	156	143	136	132	130	147	130	134	133
Livestock and livestock products . .	155	149	141	137	135	133	143	129	132	131
Total agricultural products	137	134	129	126	127	132	135	124	129	123
Feedingstuffs	143	142	146	140	139	140	140	141	139	133
Fertilizers	93	94	94	94	94	94	94	93	94	95
Building materials	180	180	180	176	176	176	194	174	191	161
Machinery and implements	204	204	204	225	225	225	217	177	203	177
Sundries	119	120	121	121	123	126	129	118	127	112
Total commodities purchased	143	143	145	145	145	146	148	138	145	133
Wholesale products in general . . .	134	134	135	134	135	137	144	133	145	127
Agricultural wages . . . . .	...	...	³⁾ 204	³⁾ 204	³⁾ 204	³⁾ 204	³⁾ 204	174	194	164

(1) Index-numbers calculated by the Central Statistical Bureau of the Netherlands, base 1926-1930 = 100. — (2) Agricultural year: July 1-June 30. — (3) Calendar year. — (4) Provisional data.

DESCRIPTION	Dec.	Nov.	Oct.	Sept.	Aug.	July	Dec.	Dec.	YEAR	
	1938	1938	1938	1938	1938	1938	1937	1936	1937	1936
Switzerland										
(Schweizerisches Bauernsekretariat)										
1914 = 100.										
Slaughter cattle . . . . .	...	115	115	115	117	118	122	119	122	112
Slaughter pigs . . . . .	...	127	126	123	121	119	130	127	127	115
Milk (base price) . . . . .	...	121	121	121	119	119	119	112	118	112
Total agricultural products	119	121	119	118	121	121	125	122	125	119
Feedingstuffs (1)	108	106	106	107	105	108	99	99	97	98
Fertilizers (1)	102	102	99	99	99	98	83	91	85	85
Wholesale products in general (1)	106.1	106.1	105.8	105.5	105.4	106.4	109.6	106.8	111.2	95.6
Yugoslavia										
(National Bank of the Kingdom of Yugoslavia)										
1926 = 100.										
Plant products	85.2	81.6	84.4	88.4	83.0	81.9	86.4	67.9	74.1	69.7
Livestock products	65.7	67.2	65.6	66.1	66.1	64.1	67.4	65.1	65.1	60.0
Industrial products	76.7	75.9	75.9	76.3	76.4	77.4	80.4	73.9	77.6	69.7
Wholesale products in general	77.5	76.7	76.8	78.0	76.8	76.5	79.9	71.2	74.7	68.4

(1) Index numbers calculated by the Bundesamt für Industrie, Gewerbe und Arbeit; base July 1914 = 100.

STOCKS

Quantities of cereals at sea with first destination Europe.

PRODUCTS	Saturday nearest 1st of month				
	January 1939	December 1938	November 1938	January 1938	January 1937
	1,000 centals				
Wheat (and flour in terms of grain)	14,808	18,758	19,042	18,816	21,523
Rye	216	154	384	778	106
Barley	1,312	2,584	2,656	2,144	1,852
Oats	608	752	282	998	822
Maize	13,954	12,845	16,584	17,635	21,950

AUTHORITY: Broomhall's Corn Trade News, Liverpool.

LATEST INFORMATION

TRADE

Statistics received too late for inclusion in the tables and statistics for December already available.

COUNTRIES PRODUCTS AND UNITS	EXPORTS		IMPORTS		COUNTRIES PRODUCTS AND UNITS	EXPORTS		IMPORTS	
	1938	1937	1938	1937		1938	1937	1938	1937
PERU					GERMANY				
	Sept.	Sept.	Sept.	Sept.		Dec.	Dec.	Dec.	Dec.
Wheat 1000 centals	—	—	161	393	Wheat 1000 centals	0	0	2,456	941
Wheat flour "	—	—	2	2	Wheat flour "	1	13	51	213
Maize "	0	0	1	0	Rye "	0	0	753	79
Rice "	—	—	47	20	Barley "	0	0	977	419
Cotton "	167	217	—	—	Oats "	0	0	154	6
Wool 1000 lb.	928	794	—	—	Maize "	0	0	767	5,496
Butter "	—	—	35	9	Rice "	37	57	654	389
Cheese "	—	—	86	57	Linseed "	0	0	331	364
Cacao "	—	—	0	26	Cotton "	0	0	417	760
Tea "	—	—	110	68	Wool (a) 1000 lb.	2	0	16,319	15,210
Coffee "	974	1,168	—	—	Wool (b) "	0	2	3,225	2,943
					Butter "	0	0	16,118	18,021
					Cheese "	82	53	6,585	6,310
					Cacao "	0	243	19,145	16,028
					Tea "	20	22	1,109	972
					Coffee "	0	0	41,363	37,479
PERU					ESTONIA				
	Oct.	Oct.	Oct.	Oct.					
Wheat 1000 centals	—	—	331	398	Wheat 1000 centals	0	0	0	1
Wheat flour "	—	—	4	1	Wheat flour "	0	0	0	0
Rye "	—	—	3	0	Rye "	0	0	64	23
Barley "	—	—	0	0	Barley "	0	0	0	13
Oats "	—	—	3	3	Oats "	0	0	0	0
Maize "	0	0	0	0	Maize "	0	0	0	0
Rice "	—	—	22	13	Rice "	0	0	1	2
Cotton "	213	135	0	0	Linseed "	0	0	0	0
Wool 1000 lb.	743	1,122	—	—	Cotton "	0	0	13	11
Butter "	0	99	33	62	Wool 1000 lb.	0	0	37	15
Cheese "	0	0	64	73	Butter "	1,706	1,574	0	0
Cacao "	0	0	84	66	Cheese "	115	86	0	0
Tea "	0	0	99	137	Cacao "	0	0	42	73
Coffee "	430	672	0	0	Tea "	0	0	4	7
					Coffee "	0	0	26	13
ROMANIA					FINLAND				
	Nov.	Nov.	Nov.	Nov.					
Wheat 1000 centals	4,781	2,366	...	...	Wheat 1000 centals	—	—	13	18
Rye "	14	557	...	...	Wheat flour "	0	0	26	24
Barley "	222	510	...	...	Rye "	0	0	9	211
Maize "	1,444	59	...	...	Barley "	0	0	0	0
					Oats "	0	0	0	0
					Maize "	—	—	244	169
					Rice "	—	—	12	27
					Linseed "	0	0	14	14
					Cotton "	0	0	75	77
					Wool 1000 lb.	0	35	505	390
					Butter "	2,057	1,680	0	0
					Cheese "	1,470	1,188	7	4
					Cacao "	—	—	20	22
					Tea "	—	—	24	31
					Coffee "	—	—	3,781	2,207
HAITI					HUNGARY (see over)				
Wheat flour 1000 centals	—	—	15	22	Wheat 1000 centals	311	773	0	0
Maize "	0	1	—	—	Wheat flour "	147	96	0	0
Rice "	—	—	1	3	Rye "	4	33	0	0
Cotton "	—	—	0	0	Barley "	16	4	0	0
Butter 1000 lb.	—	—	20	24	Oats "	0	0	0	0
Cheese "	—	—	7	9					
Coffee "	4,171	3,565	—	—					
TURKEY									
Wheat 1000 centals	200	13	—	—					
Barley "	122	423	—	—					
Maize "	0	1	—	—					
Rice "	—	—	—	0					
Cotton "	91	28	—	—					
Wool a) 1000 lb.	2,681	1,581	—	—					
Butter "	0	2	—	—					
Cheese "	2	2	—	—					
Tea "	—	—	185	247					
Coffee "	—	—	717	1,065					

a) Wool, greasy. — b) Wool, scoured.

COUNTRIES PRODUCTS AND UNITS	EXPORTS		IMPORTS		COUNTRIES PRODUCTS AND UNITS	EXPORTS		IMPORTS	
	1938	1937	1938	1937		1938	1937	1938	1937
HUNGARY (concluded)					SWEDEN				
Maize 1000 centals	0	920	0	0	Wheat 1000 centals	6	353	96	106
Rice "	0	0	91	175	Wheat flour "	1	1	2	0
Linseed "	0	0	0	0	Rye "	0	0	4	5
Cotton "	0	0	64	59	Barley "	0	0	0	0
Wool 1000 lb.	51	15	333	82	Oats "	0	0	0	13
Butter "	273	745	0	0	Maize "	—	—	59	323
Cheese "	79	205	0	2	Rice "	—	—	17	22
Cacao "	0	0	1,043	633	Linseed "	—	—	42	103
Tea "	0	0	44	77	Cotton "	—	—	174	93
Coffee "	0	0	247	326	Wool 1000 lb.	—	—	1,444	761
NETHERLANDS					Butter "	2,789	3,501	0	0
Wheat 1000 centals	1	0	1,316	900	Cheese "	—	—	417	280
Wheat flour "	1	3	125	157	Cacao "	—	—	1,246	1,111
Rye "	291	115	40	121	Tea "	—	—	73	79
Barley "	136	46	258	559	Coffee "	—	—	9,852	8,675
Oats "	75	154	50	160	SWITZERLAND				
Maize "	0	0	1,446	1,881	Wheat 1000 centals	0	0	1,098	1,008
Rice "	213	248	113	149	Rye "	0	0	48	42
Linseed "	13	20	452	770	Barley "	0	0	236	507
Cotton "	2	1	99	176	Oats "	0	0	284	476
Wool { a) 1000 lb.	556	289	108	256	Maize "	0	0	297	299
b) "	776	445	35	26	Rice "	0	0	43	57
Butter "	0	33	6,109	7,657	Cotton "	0	0	63	93
Cheese "	9,614	11,098	68	0	Wool 1000 lb.	33	24	1,640	1,056
Cacao "	231	562	11,480	13,162	Butter "	2	2	55	562
Tea "	18	20	1,773	2,449	Cheese "	3,314	3,766	390	461
Coffee "	1,113	624	9,742	5,908	Cacao "	26	123	1,444	666
POLAND-DANZIG					Tea "	0	2	143	132
Wheat 1000 centals	65	32	0	1	Coffee "	0	0	3,126	2,923
Wheat flour "	73	30	0	0	CANADA				
Rye "	1,200	0	0	2	Wheat 1000 centals	9,590	3,982	73	127
Barley "	995	492	0	0	Wheat flour "	716	662	10	17
Oats "	43	0	0	0	Rye "	0	0	0	12
Maize "	0	0	0	33	Barley "	543	629	0	0
Rice "	6	13	0	10	Oats "	358	142	0	82
Linseed "	0	0	0	0	Maize "	0	0	1,070	355
Cotton "	0	0	123	146	Rice "	0	0	26	39
Wool 1000 lb.	0	0	3,146	3,201	Linseed "	1	3	6	22
Butter "	547	1,592	0	0	Cotton "	—	—	99	138
Cheese "	11	4	24	22	Wool 1000 lb.	260	146	818	348
Cacao "	0	0	2,004	1,720	Butter "	185	82	0	7
Tea "	0	0	320	291	Cheese "	7,575	2,778	148	123
Coffee "	0	0	1,082	948	Cacao "	—	—	2,019	992
UNITED KINGDOM					Tea "	—	—	3,126	2,908
Wheat 1000 centals	72	104	8,524	9,049	Coffee "	18	55	3,091	2,392
Wheat flour "	187	165	719	872	BRAZIL				
Barley "	—	—	1,351	1,870	Coffee 1000 lb.	184,973	191,139	—	—
Oats "	—	—	150	102	BURMA				
Maize "	171	154	5,165	9,028	Wheat 1000 centals	1	1	7	8
Rice "	12	10	198	134	Wheat flour "	0	0	62	43
Linseed "	—	—	297	314	Barley "	—	—	0	0
Cotton "	31	44	970	2,062	Maize "	9	6	—	—
Wool 1000 lb.	28,951	22,712	82,993	65,420	Rice "	3,433	2,792	2	2
Butter "	1,753	2,341	79,426	99,182	Linseed "	—	—	0	0
Cheese "	368	328	22,833	30,256	Cotton "	—	—	0	0
Cacao "	1,047	2,147	24,077	14,548	Wool 1000 lb.	35	46	0	0
Tea "	4,870	4,650	51,992	60,541	Butter "	24	26	0	0
Coffee "	461	450	1,812	4,400	Cheese "	—	—	82	77
					Tea "	—	—	7	9
					Coffee "	4	44	258	351
						0	0	29	15

a) Wool, greasy. — b) Wool, scoured.

PRODUCTION

Poland: The final estimates of cereal and potato production in 1938 are given below with comparisons:

	1938	1937	Average 1932-36	% 1938	
				1937 = 100	Average = 100
ooo centals					
Wheat	47,882	42,465	42,965	112.8	111.4
Rye	159,911	124,293	143,869	128.7	111.2
Barley	30,233	30,058	31,566	100.6	95.8
Oats	58,565	51,652	56,714	113.4	103.3
Potatoes	761,881	886,724	699,124	85.9	109.0

ooo bushels					
Wheat	79,802	70,774	71,607	112.8	111.4
Rye	285,556	221,953	256,909	128.7	111.2
Barley	62,986	62,622	65,764	100.6	95.8
Oats	183,015	161,411	177,231	113.4	103.3
Potatoes	1,269,777	1,477,843	1,165,183	85.9	109.0

The rye crop is the largest of the last ten years but barley production is rather poor and below the average. Production of wheat, oats and potatoes is fair and above the average.

Portugal: Temperatures were rather high in December: there was rain after the 15th. Sowing was difficult in the first half of the month owing to lack of rain. In the second half good progress was made.

Recent frosts checked growth of cereals which was too forward. The frost damaged pastures, but damage was slight and there was plaintful growth for animals.

Argentina (Cable of January, 28): The first official estimate of the area sown to maize in 1938-39 is 13,300,000 acres compared with 15,319,000 acres, the final estimate for 1937-38, and with an average of 16,500,000 acres in the five preceding years; percentages, 87.1 and 80.5. General lack of rain and high temperatures did some damage to the crop.

Indochina: The condition of the rice crops in November in the various parts of the country, excluding Laos, was as follows.

In Annam, harvesting of tenth month rice was almost finished at the end of November. Yields were satisfactory. Twelfth month rice was growing well in central Annam but poorly in the south. *Mas* prepared for the fifth month rice in north Annam were growing well. Sowing and planting out of third month rice continued everywhere; there is a marked increase in area.

In Cambodia, harvesting of early rice is finished; yields were satisfactory. Main season rice reached maturity; yields promise to be excellent. The crop is anticipated to be larger than last year's.

Transplanted rice in Cochinchina was growing normally. Harvesting of Samo and third month rice was completed; yields appear to be larger than those of last year.

In Tonkin, growth of fifth month rice was hampered by drought. Areas were likely to be reduced if drought continued.

Maize planting went forward in November in North Annam and Cambodia. Growth was good in central, north and south Annam.

The *coffee* crop in Tonkin was good on the whole.

Tea bushes were growing regularly everywhere.

Sugar-cane was in satisfactory condition. Yields were satisfactory.

The harvest of *groundnuts* yielded 11.6 to 12.5 centals per acre in Annam. It was average in Cochinchina. New sowings were begun at the end of November in Cambodia.

Vegetation of mulberries was dormant.

French Morocco: The rains that came at the end of November after a fairly prolonged drought were beneficial in most areas, but the continuance of the bad weather in December began to make farmers anxious, particularly in the north.

Except in the north, where rain coincided with the beginning of sowing, seeding was fairly well advanced. That of *barley* and *oats* was finished in nearly all districts with acreages rather higher than last year. The sowings of *soft wheat* showed as light increase in Abda and Taya; those of *hard wheat* are normal.

The picking of *table grapes* is not quite finished in eastern Morocco. Everywhere else, growth has been checked sufficiently for cutting to be undertaken and the vintage begun.

Rain hampered the harvesting of fields of late *cotton*, the fibre of which will certainly have deteriorated.

The very sharp drop in temperature in the mountain zone and the plains round the Atlas mountains checked the growth of grasses. Good *pastures* have sprung up in the coastal area. Livestock, however, suffered from cold and humidity.

On the whole, the agricultural situation in December was satisfactory.

Prof. ALESSANDRO BRIZI, *Segretario generale dell'Istituto, Direttore responsabile.*

MONTHLY CROP REPORT AND AGRICULTURAL STATISTICS

The following explanations refer to crop conditions quoted in the crop notes and in the tables. — Crop condition according to the system of the country: Germany, Hungary, Luxemburg and Czecho-Slovakia: 1 = excellent, 2 = good, 3 = average, 4 = bad, 5 = very bad; Finland: 8 = very good, 6 = above the average, 5 = average; France: 100 = excellent, 70 = good, 60 = fairly good, 50 = average, 30 = bad; Estonia, Latvia, Lithuania, Poland, Romania and Sweden: 5 = excellent, 4 = good, 3 = average, 2 = bad, 1 = very bad; Netherlands: 90 = excellent, 70 = good, 60 = fairly good, 50 = below average; Portugal: 100 = excellent, 80 = good, 60 = average, 40 = bad, 20 = very bad; Switzerland: 100 = excellent, 90 = very good, 75 = good, 60 = fairly good, 50 = average, 40 = rather bad, 30 = bad, 10 = very bad; U. S. S. R.: 5 = good, 4 = above the average, 3 = average, 2 = below average, 1 = bad; Canada: 100 = crop condition promising a yield equivalent to the average yield of a long series of years; United States: 100 = crop condition which promises a normal yield; Egypt: 100 = crop condition which promises a yield equal to the average yield of the last five years. — For other countries the system of the Institute is employed: 100 = crop condition which promises a yield equal to the average of the last ten years.

See latest information at the end of the Crop Report.

1939

No. 2

VEGETAL PRODUCTION

World Wheat Production in 1938 and the Present Condition of Winter Wheat Crops.

Since the publication of the January Crop Report, revisions of 1938 production figures have been few. The estimate for Belgium is greatly increased, the revised figure being 2.3 million bushels more than the first estimate, and

World Wheat Production (1)

(million bushels).

YEARS	Europe (2)	North America	South America	Asia (2)	Africa	Oceania	Total (2)	U.S.S.R.
Average 1926-1930	1,342	1,315	300	518	117	164	3,756	836
1931	1,437	1,277	263	570	131	197	3,875	753
1932	1,489	1,213	286	503	140	225	3,856	742
1933	1,746	849	345	555	124	186	3,805	1,018
1934	1,549	816	290	554	153	140	3,502	1,117
1935	1,576	922	198	577	136	153	3,562	1,132
1936	1,481	863	297	603	115	157	3,516	1,135
1937	1,554	1,069	247	617	129	194	3,810	..
1938 (preliminary)	1,845	1,293	378	680	136	151	4,483	...

(1) Not including China, Iran and Iraq. — (2) Not including U. S. S. R.

indicates the exceptionally high yield of 46.9 bushels per acre. According to information received at the last moment, the estimate of production in Germany (excluding Austria) has been increased by 6.4 million bushels. The latest figures for Lithuania and Romania are also higher, but only slightly. For Poland on the other hand, the provisional estimate has been heavily reduced, the present figure being 4.6 million bushels lower, but the 1938 crop may even so be considered large, since it exceeds the average of the last ten years by 11 per cent. and is not far short of the largest two crops of 1930 and 1931. The estimate for Algeria has been further raised by 1.2 million bushels. Finally the Argentine Government has raised its wheat crop estimate by 3.7 million bushels.

Accordingly, the total of world production shows an increase of about 11 million bushels on the figure given in last month's Crop Report.

* * *

During December—the last month for which official trade figures are available—world net exports of wheat were smaller than in November, but about the same as those of December, 1937. The total exports of the first five months of the present season are considerably, namely 32 million bushels, higher than in the corresponding period of the 1937-38 season. The rise may be partly offset by lower exports in the next few months, but it is very possible

*World net Exports of Wheat (including flour in terms of wheat). **
(million bushels)

EXPORTS BY MONTHS				EXPORTS BY COUNTRIES			
Months	1938-39	1937-38	1936-37	Exporting Countries	Five months: August-December		
					1938-39	1937-38	1936-37
August	54	38	47	Canada 2)	82	49	125
September	47	38	52	United States 2) . .	33	36	5) + (18)
October	56	48	52	Argentina	22	18	33
November	48	49	56	Australia	30	30	29
December	44	44	53	Total four countries .	167	133	187
January . . . . .	...	48	63	Romania	23	21	22
February . . . . .	...	46	61	Hungary	14	5	14
March . . . . .	...	50	62	Other Europ. count. 3)	5	8	18
April . . . . .	...	44	47	North Africa	4	8	5
May . . . . .	...	40	42	India	2	9	7
June . . . . .	...	44	40	U. S. S. R.	30	31	2
July . . . . .	...	46	29	Other countries 4) .	4	2	5
Total August-December.	249	217	260	Total other countries .	82	84	73
Total Year	1) 540	535	604	General Total	249	217	260

* Aggregate net exports of the normal exporting countries (possible net imports into certain of these countries are not deducted from the totals).

1) Forecast October 1938. — 2) Net exports adjusted in accordance with the monthly variations in stocks of Canadian wheat in the United States and stocks of United States wheat in Canada. — 3) Bulgaria, Lithuania, Poland and Yugoslavia. — 4) Iran, Iraq, Turkey, Chile and Uruguay. — 5) Net imports.

that the Institute's estimate made in October for total exports during the season may prove too low. This provisional estimate will be revised next month when the world wheat situation will be, as usual, reviewed in the light of the latest returns.

The rise in world exports on last season is almost exactly proportionate to the increase in exports from Canada which increased from 49 million bushels in August-December 1937 to 82 millions in the same period of 1938.

The imports into European countries were considerably lower in December 1938 than in the preceding months and even lower than in December 1937. For the first five months of the season there was a total increase on last year of 25 million bushels. Three-fourths of the rise was due to larger imports into the British Isles and Germany. Almost all the other countries of the continent had slightly higher imports than in 1937, the only exceptions being Belgium, France and Greece.

*Net Imports of Wheat into Europe (including flour in terms of wheat) *.*
(million bushels).

IMPORTS BY MONTHS				IMPORTS BY COUNTRIES			
Months	1938-39	1937-38	1936-37	Importing Countries	Five months: August-December		
					1938-39	1937-38	1936-37
August	40	35	25	United Kingdom . .	88	81	84
September	36	29	29	Ireland	7	6	6
October	42	33	32	<i>Total</i>	95	87	90
November	39	34	33	Belgium	16	20	20
December	32	33	36	Netherlands	13	10	8
January . . . . .	...	28	25	Germany and Austria	29	18	4
February . . . . .	...	32	37	France	3	7	3
March . . . . .	...	35	43	Switzerland	8	7	8
April . . . . .	...	33	39	Greece	4	5	8
May . . . . .	...	34	49	Italy	3	1	6
June . . . . .	...	37	49	Scand. & Baltic Sta-			
July . . . . .	...	40	41	tes 6)	10	6 4)	7
<i>Total August-December.</i>	189 2)	164 4)	155	Other countries 7) .	8 2)	3 4)	1
<i>Total Year</i>	1) 415 3)	403 5)	438	<i>Total Continent</i> . .	94 2)	77 4)	65
				<i>Total Europe</i>	189 2)	164 4)	155

* Aggregate net imports of normal importing countries, after deduction of exports, if any.

1) Forecast October 1938. — 2) After deduction of net exports of 1 million bushels from Czecho-Slovakia. — 3) After deduction of net exports of 1.1 million bushels from Sweden. — 4) After deduction of net exports of 0.4 million bushels from Sweden and 0.4 million bushels from Czecho-Slovakia. — 5) After deduction of net exports of 9 million bushels from Czecho-Slovakia. — 6) Denmark, Estonia, Finland, Latvia, Norway and Sweden. — 7) Czecho-Slovakia, Spain, Portugal, Albania, Malta, etc.

* * *

The weather in Europe in January and the first half of February appears to have been rather favourable on the whole to the cereal crops. In some areas, particularly in France and parts of the United Kingdom and Ireland,

there was excessive rain. In other regions, especially in southeastern Europe, it was feared that, in the absence of adequate snow-cover, a sudden return of cold conditions might cause damage.

Information received since the publication of the last Crop Report show that the damage caused in France by the frost of the second half of December was more serious than was first supposed. It is estimated that at least 3,500,000 acres of wheat sowings were partially or totally destroyed and that nearly 30 per cent. of the sown area requires resowing. In Belgium also, the winter cereals, wheat in particular, were seriously damaged but the proportion destroyed has not yet been ascertained.

Area sown to Winter Cereals, in thousand acres.

(The years indicated are those of the harvest)

COUNTRIES	WHEAT			RYE			BARLEY			OATS		
	1939	% 1939		1939	% 1939		1939	% 1939		1939	% 1939	
		1938 = 100	1933 to 1937 = 100		1938 = 100	1933 to 1937 = 100		1938 = 100	1933 to 1937 = 100		1938 = 100	1933 to 1937 = 100
Germany 1) . .	4,714	104.6	100.2	10,186	99.0	94.0	1,347	113.7	148.2	—	—	—
Bulgaria . . .	3,025	105.3	102.2	423	97.1	94.2	461	106.8	103.5	—	101.8	—
France 2) . . .	12,249	99.2	95.8	1,604	98.9	96.0	503	106.0	112.3	2,274	—	107.8
Italy	12,635	104.0	102.2	—	—	—	—	—	—	—	—	—
Latvia	180	108.0	98.1	724	103.0	110.7	—	—	—	—	—	—
Lithuania . . .	361	101.6	93.0	1,278	98.6	104.1	—	—	—	—	—	—
Romania	8,649	98.3	115.8	939	79.8	97.4	175	87.6	87.8	—	—	—
Unit. Kingdom: Engl. and W. . .	1,664	92.1	96.4	—	—	—	—	—	—	—	—	—
Canada	799	98.0	119.5	596	102.4	96.6	—	—	—	—	—	—
United States . .	46,173	81.9	94.8	7,171	107.5	117.4	—	—	—	—	—	—
India 3)	32,292	101.5	98.3	—	—	—	—	—	—	—	—	—
Tunisia	2,125	128.7	113.3	—	—	—	1,236	166.7	107.5	86	112.9	122.6

1) Not including Austria. — 2) Sowings at January 1, 1939. — 3) First estimate.

Though the gaps may be partially filled up by new sowings, it seems that the losses caused by frost in France and the reduction brought about in the British Isles by the unfavourable weather conditions at sowing time offset and perhaps slightly exceed the increase in sowings in other European countries.

The figures of sowings now available are reproduced in the accompanying table. They indicate increases on last year in Germany, Bulgaria and Italy ranging from 4 to 5 per cent.

In the U. S. S. R., alternations of freezing and thawing have had unfavourable effects in several regions, particularly in Central Russia and the Lower Volga, owing to the formation of an ice crust, in some places very thick, and the disappearance of the snow cover. Elsewhere, conditions were normal.

In the United States, the weather conditions of the second half of January were rather favourable. In the first half of February they were changeable;

some areas experienced alternations of freezing and thawing while others report an improvement in the crop situation. Prospects continue to be rather mediocre in the southwest but are better elsewhere.

The wheat crops in India benefited from rain; crop expectations are less pessimistic than they were a month ago, partly because the first estimate of sowings shows a slight increase on last year.

In North Africa, crops are satisfactory on the whole.

Current information from various countries on Wheat, Rye, Barley and Oats.

Europe.

Germany: The final figures of area under cereals in Germany, excluding Austria, which were published in last month's Crop Report, have been very slightly revised as follows: wheat 5,037,000 acres, rye 10,535,000 acres, barley 4,135,000 acres, oats 6,666,000 acres, spelt 138,000 acres and meslin 1,459,000 acres. No corresponding revisions have been made for Austria and consequently the figures in the tables have not been changed.

Belgium: The weather was exceptionally mild up to the middle of December. Subsequently there was very heavy frost with temperatures as low as 0° F. followed by a heavy snowfall. At the end of the month the thaw had begun. Crop condition just before the frost was generally excellent. It is certain that winter cereals, particularly wheat, were extensively damaged. Nevertheless, it was difficult at the end of the month to estimate what percentage of crops had been completely destroyed.

The latest estimate of production of spelt in 1938 is 503,700 centals (1,259,200 bushels) against 475,900 (1,190,000) in 1937 and an average of 551,700 (1,379,000) in 1932 to 1936; percentages, 105.8 and 91.3.

Bulgaria: Sowing of winter cereals was favoured by the weather and was effected in good time. Germination was normal.

The area under winter meslin in 1938-39 is estimated at 196,1000 acres against 202,800 acres in 1937-38 and an average of 206,100 acres in 1932-33 to 1936-37; percentages, 96.7 and 95.1.

The area under winter spelt in 1938-39 is estimated at 22,100 acres against 22,200 acres in 1937-38 and an average of 25,800 acres in 1934-35 to 1936-38; percentages, 99.5 and 85.4.

Estonia: The land was completely frozen as early as December. In January there were satisfactory falls of snow, and fields had a cover which though thin was sufficient to protect winter cereal crops.

France: It is officially estimated that the percentage of wheat destroyed by the frosts of December 19 and 20 was 70 per cent in the north and Paris basin, 10 to 20 per cent. in the west and east, and practically nil in the centre, southeast and southwest. The total acreage requiring to be re-sown is estimated at least 3,500,000 acres, or not less than 28 per cent of the total area sown on January 1. Of this 2,200,000 only had been completely destroyed, but it is estimated that 1,200,000 to 1,500,000 acres of wheat, partially destroyed, also requires re-sowing.

Rye appears to have resisted the severe frosts well but winter oats and barley suffered very severe damage. In exposed positions, particularly in the north, the seedlings were almost totally destroyed. January was on the whole very mild. In the

Area and Production of Wheat.

COUNTRIES	† AREA					† PRODUCTION							
	1938 and 1938-39	1937 and 1937-38	Aver. 1932 to 1936 and 1932- 1933 to 1936- 1937	% 1938 and 1938-39		1938 and 1938-39	1937 and 1937-38	Average 1932 to 1936 and 1932-33 to 1936-37	1938 and 1938-39	1937 and 1937-38	Average 1932 to 1936 and 1932-33 to 1936-37	% 1938 and 1938-39	
				1937 and 1937- 1938 = 100	Aver. 1938 = 100							1937 and 1937- 1938 = 100	Aver. 1938 = 100
ooo acres					ooo centals			ooo bushels					
*Albania . . .		99	96	102.2	94.0		982	988		1,636	1,646	120.2	111.8
Germany 1) . .	5,641	5,522	6,005	100.7	109.3	128,836	107,156	115,214	214,723	178,590	192,020	129.0	126.2
Belgium . . .	428	425	392	100.7	109.3	12,034	9,330	9,535	20,056	15,550	15,891	129.0	126.2
Bulgaria . . .	3,449	3,234	3,003	106.7	114.9	47,392	38,946	30,174	78,986	64,909	50,289	121.7	157.1
Denmark . . .	324	319	279	101.4	116.1	10,141	8,113	7,359	16,902	13,521	12,265	125.0	137.8
*Spain . . .			11,165	102.4	113.2		1,883	1,672	1,481	3,139	2,786	112.6	127.1
Estonia . . .	172	168	152	102.4	114.2	4,784	4,599	2,006	7,973	7,665	3,343	104.0	238.5
Finland . . .	291	279	131	104.4	221.2	207,235	154,705	188,875	345,385	257,837	314,785	134.0	109.7
France . . .	12,502	12,591	13,281	100.6	114.2	21,561	19,424	14,142	35,934	32,373	23,569	111.0	152.5
Greece . . .	2,131	2,118	1,866	100.6	114.2	58,070	43,295	47,719	96,782	72,157	79,531	134.1	121.7
Hungary . . .	4,006	3,665	3,936	109.3	101.8	4,702	4,194	2,537	7,837	6,990	4,228	112.1	185.3
Ireland . . .	230	220	117	104.6	197.4	178,394	177,772	157,906	297,317	296,280	263,171	100.4	113.0
Italy . . .	12,426	12,782	12,421	97.2	100.0	4,231	3,781	3,823	7,052	6,302	6,372	111.9	110.7
Latvia . . .	348	339	316	102.9	110.2	5,540	4,865	5,556	9,233	8,109	9,259	113.9	99.7
Lithuania . . .	501	521	511	96.2	98.0	1,065	724	597	1,775	1,206	996	147.2	178.2
Luxemburg . . .	57	46	38	123.5	148.3	177	196	160	296	326	266	90.6	111.1
Malta . . .	10	9	47	103.7	102.6	1,568	1,498	801	2,614	2,497	1,334	104.7	195.9
Norway . . .	86	79	47	109.1	183.2	9,083	7,569	9,395	15,138	12,615	15,657	120.0	96.7
Netherlands . .	321	318	351	100.9	91.3	47,882	42,465	42,965	79,802	70,774	71,607	112.8	111.4
Poland . . .	4,344	4,184	4,295	103.8	101.1	9,921	8,801	11,316	16,534	14,668	18,860	112.7	87.7
Portugal . . .		1,219	1,353	107.5	119.8	109,076	82,896	57,159	181,790	138,157	95,263	131.6	190.8
Romania . . .	9,435	8,777	7,876	107.5	119.8	41,552	31,203	33,273	69,253	52,005	55,455	133.2	124.9
Un. Kingdom: .	1,830	1,732	1,637	105.7	111.8	2,330	2,509	2,146	3,883	4,181	3,577	92.9	108.6
England and W.	92	100	85	92.3	109.4	128	99	162	213	164	269	129.7	79.2
N. Ireland . . .	6	4	7	126.9	81.1	18,111	15,432	14,816	30,184	25,720	24,693	117.4	122.2
Sweden . . .	759	734	704	103.4	107.8	3,657	3,710	3,029	6,096	6,184	5,048	98.6	120.8
Switzerland . .	177	174	156	101.5	113.1	39,425	30,760	35,327	65,708	51,266	58,877	128.2	111.6
Czechoslovakia	2,218	2,108	2,276	105.3	97.5	66,799	51,744	47,866	111,329	86,238	79,775	129.1	139.6
Yugoslavia . . .	5,262	5,263	5,147	100.0	102.2	1,035,577	857,458	845,339	1,723,934	1,429,070	1,408,869	120.8	122.5
Total Eur. \$. .	68,265	66,930	66,392	102.0	102.8								
*U.S.S.R. 1) 2) .	37,306 3)	36,797 4)	32,374	101.4	115.2	...	...	617,824	...	...	1,029,686	...	...
Canada . . .	25,930	25,570	25,376	101.4	102.2	210,006	108,126	180,235	350,010	180,210	300,391	194.2	116.5
United States 1)	49,711	46,978	34,411	105.8	144.5	411,982	411,494	274,976	686,637	685,824	458,294	100.1	149.8
States 2) 3) . .	20,510	17,444	15,743	117.6	130.3	146,498	113,911	95,597	244,164	189,852	159,329	128.6	153.2
*Mexico . . .	1,273	1,181	1,181	100.0	102.2	6,730	6,730	6,730	11,216	11,216	11,409	111.0	139.5
Total N. Am. . .	96,151	89,992	75,530	106.8	127.3	768,486	633,531	550,808	1,280,811	1,055,886	918,014	121.3	139.5
*China . . .	42,617	49,891	...	...	...	381,875	494,270	...	636,446	823,767	...	...	...
Cyprus . . .	184	177	...	...	...	1,178	1,327	1,122	1,963	2,211	1,871	88.8	104.9
Chosen . . .	845	839	800	100.8	105.7	6,239	6,145	5,394	10,399	10,242	8,990	101.5	115.7
India . . .	35,635	33,215	34,128	107.3	104.4	241,472	218,445	209,664	402,453	364,075	349,440	110.5	115.2
*Iraq . . .	3,250 1)	2,437	...	...	...	12,787 2)	8,529	...	21,311 3)	14,215	...	...	...
Japan . . .	1,777	1,752	1,532	101.4	116.0	27,147	30,247	25,766	45,244	50,410	42,943	89.8	105.4
Manchukuo . . .	...	2,967	2,854	...	...	18,071	19,668	19,694	30,117	32,780	32,823	91.9	91.8
*Palestine . . .	558	489	...	...	...	2,809	1,592	...	4,682	2,654	...	...	...
Syria & Leb. . .	1,412	1,373	1,262	102.8	111.9	14,015	10,336	8,859	23,358	17,227	14,765	135.6	158.2
*Transjordan . .						2,491	1,285	...	4,152	2,142	...	...	...
Turkey . . .	8,323	7,973	...	...	...	96,257	79,793	60,128	160,424	132,985	100,212	120.6	160.1
Total Asia \$. .	51,143	48,653	48,726	105.1	104.9	404,379	365,961	330,627	673,958	609,930	551,044	110.5	122.3
Algeria . . .	4,101	4,311	4,036	95.1	101.6	20,965	19,925	20,169	34,941	33,208	33,614	105.2	103.9
Egypt . . .	1,470	1,421	1,512	103.5	97.3	27,560	27,226	26,249	45,933	45,376	43,747	101.2	105.0
It. East Afr.: . .													
*Eritrea . . .	...	49	17	...	...	...	216	98	...	360	163	...	...
Kenya 9) . . .	67	57	45	117.9	149.4	516	371	306	859	619	509	138.8	168.7
*Libya . . .	156	102	55	152.3	284.1	...	380	131	...	633	301	...	...
F. Morocco . .	2,906	3,027	3,150	96.0	92.3	12,886	12,537	15,448	21,476	20,895	25,746	102.8	83.4
Tunisia . . .	1,495	2,429	1,868	61.5	80.0	8,378	10,582	7,848	13,962	17,637	13,081	79.2	106.7
Total N. Afr. . .	10,039	11,245	10,611	89.3	94.6	70,305	70,641	70,020	117,171	117,735	116,697	99.5	100.4
Argentina . . .	19,220 10)	19,220 10)	17,996	108.6	116.0	191,803	110,882	139,002	319,665	184,799	231,665	173.0	138.0
*Chile . . .	2,047	1,890	1,906	103.3	107.4	...	18,237	18,572	...	30,394	30,953	...	...
Uruguay . . .	1,342	1,375	1,097	97.6	122.3	9,173	9,945	6,611	15,288	16,575	11,019	92.2	138.7
Un. S. Afr. 9) .	2,084	1,751	1,804	119.0	115.5	10,452	6,094	9,309	17,420	10,157	15,514	171.5	112.3
Australia . . .	14,105	13,686	13,497	103.1	104.5	87,000	112,811	98,321	145,000	188,018	163,869	77.1	88.5
*N. Zealand . . .		186	257	...	...	...	3,626	5,046	...	6,043	8,410	...	...
TOTALS \$. .	263,997	252,852	235,653	104.4	112.0	2,577,175	2,167,323	2,050,037	4,295,247	3,612,170	3,416,691	118.9	125.7

See notes on page 100.

Area and Production of Rye.

COUNTRIES	† AREA					† PRODUCTION													
	1938 and 1938-39	1937 and 1937-38	Average 1932 to 1936 and 1932-33 to 1936-37	1938 and 1938-39		1938 and 1938-39	1937 and 1937-38	Average 1932 to 1936 and 1932-33 to 1936-37	1938 and 1938-39	1937 and 1937-38	Average 1932 to 1936 and 1932-33 to 1936-37	1938 and 1938-39							
				1937 and 1937- 38 = 100	Aver. = 100							1937 and 1937- 38 = 100	Aver. = 100						
	ooo acres					ooo centals			ooo bushels										
*Albania. . .		9	7	...	...		84	76		151	136	...	...				
Germany 1). .	11,421	11,161	12,074	102.3	94.6	199,601	161,912	187,538	356,431	289,130	334,889	123.3	106.4						
Belgium . . .	381	376	446	101.4	85.3	8,489	7,606	9,889	15,158	13,583	17,659	111.6	85.8						
Bulgaria . . .	465	521	495	89.1	93.9	4,145	5,257	4,604	7,402	9,387	8,221	78.9	90.0						
Denmark . . .	358	344	349	104.2	102.6	6,393	5,538	5,427	11,417	9,889	9,691	115.4	117.8						
*Spain . . .	...	...	1,457	...	...	...	...	11,809	...	...	21,087	...	...				
Estonia . . .	365	368	359	99.2	101.7	4,146	4,663	4,229	7,403	8,327	7,552	88.9	98.0						
Finland . . .	607	597	579	101.7	104.8	8,223	9,510	7,737	14,684	16,982	13,816	86.5	106.3						
France . . .	1,640	1,639	1,687	100.1	97.2	17,732	16,307	17,889	31,665	29,119	31,944	108.7	99.1						
Greece . . .	178	176	175	101.4	101.6	1,371	1,444	1,253	2,448	2,579	2,238	94.9	109.4						
Hungary . . .	1,555	1,499	1,592	103.7	97.7	17,218	13,622	16,699	30,747	24,325	29,820	126.4	103.1						
Ireland . . .	2	2	3	96.8	70.7	29	31	43	52	55	77	94.0	67.5						
Italy . . .	257	259	276	99.2	93.2	3,045	3,193	3,370	5,437	5,701	6,018	95.4	90.3						
Latvia . . .	709	713	640	99.5	110.8	8,349	9,291	7,568	14,909	16,592	13,514	89.9	110.3						
Lithuania . .	1,305	1,259	1,223	103.7	106.7	13,751	13,381	13,120	24,555	23,894	23,428	102.8	104.8						
Luxemburg . .	18	16	20	114.8	91.3	287	219	282	513	392	504	130.9	101.8						
Norway . . .	13	15	15	91.0	87.1	243	248	253	433	443	453	97.8	95.7						
Netherlands .	585	563	471	104.0	124.4	11,905	10,660	9,679	21,259	19,036	17,285	111.7	123.0						
Poland . . .	14,571	14,138	14,190	103.1	102.7	159,911	124,293	143,869	285,556	221,953	256,909	128.7	111.2						
*Portugal . .		348	369	...	...		2,228	2,404		3,978	4,293	...	...				
Romania . . .	1,190	1,083	946	109.9	125.8	14,903	9,950	7,498	26,613	17,769	13,389	149.8	198.8						
Un. Kingdom: Engl. and Wales . . .	16	12	15	135.4	108.3	240	157	212	428	280	378	152.9	113.1						
Sweden . . .	498	524	551	95.0	90.3	8,922	9,100	9,671	15,933	16,250	17,269	98.0	92.3						
Switzerland .	38	37	40	100.5	92.8	717	726	737	1,281	1,296	1,316	98.8	97.3						
Czecho-Slo- vakia . . .	2,510	2,413	2,535	104.0	99.0	37,038	32,730	39,064	66,139	58,447	69,757	113.2	94.8						
Yugoslavia . .	523	628	619	83.2	84.4	4,404	4,616	4,636	7,864	8,243	8,279	95.4	95.0						
Total Europe	39,205	38,343	39,300	102.3	99.7	531,062	444,454	495,267	948,327	793,672	884,406	119.5	107.2						
*U. S. S. R. ^(w) ^(s) . . .	50,284	56,486	59,002	89.0	85.2	...	...	7) 477,119	...	...	7) 852,001	...	...				
—	...	...	923	...	...	...	...	7) 6,246	...	...	7) 11,154	...	...				
Canada . . .	741	894	677	83.0	109.5	6,153	3,232	3,499	10,988	5,771	6,248	190.4	175.9						
United States . . .	3,979	3,846	2,944	103.5	135.2	30,822	27,905	18,125	55,039	49,830	32,366	110.5	170.1						
Total N. Am.	4,720	4,740	3,621	99.6	130.4	36,975	31,137	21,624	66,027	55,601	38,614	118.7	171.0						
Turkey . . .	...	875	688	...	...	11,910	9,897	6,045	21,267	17,674	10,795	120.3	197.0			
—																			
Algeria . . .	5	3	3	144.1	147.9	25	21	16	44	37	29	119.4	150.9						
*French Morocco . . .	...	9	4	...	...	...	16	14	...	28	25	...	...				
—																			
Argentina . .	10) 2,254	10) 2,184	10) 1,896	103.2	118.9	6,063	1,973	5,373	10,826	3,523	9,594	307.3	112.8						
—																			
*U. of S. Afr. g)	...	...	6) 121	...	...	...	406	7) 492	...	7) 725	878	...	...				
TOTALS . . .	47,059	46,145	45,508	102.0	103.4	586,035	487,482	528,325	1,046,491	870,507	943,438	120.2	110.9						

See notes on page 100.

Area and Production of Meslin.

COUNTRIES	† AREA					† PRODUCTION											
	1938	1937	Average 1932 to 1936	% 1938		1938	1937	Average 1932 to 1936	1938	1937	Average 1932 to 1936	% 1938					
				1937	Aver.							1937	Aver.				
														= 100	= 100	= 100	= 100
ooo acres			ooo centals			ooo bushels											
Germany 1)	1,471	1 499	1,094	98.1	134.5	27,789	25,678	17,588	47,913	44,274	30,325	108.2	158.0				
Belgium . . .	4	6	6	71.5	73.8	90	118	97	156	204	167	76.3	93.0				
Bulgaria . . .	258	404	214	63.9	120.3	2,945	4,756	2,266	5,078	8,199	3,907	61.9	130.0				
Denmark . . .	746	764	814	97.7	91.6	17,637	16,619	17,137	30,409	28,653	29,546	106.1	102.9				
Spain . . . .	...	...	7) 109	...	...	...	...	7) 623	...	...	7) 1,075	...	...		
Estonia . . .	209	199	192	105.1	108.8	2,460	1,991	1,814	4,242	3,433	3,129	123.6	135.6				
Finland . . .	21	21	37	99.3	57.4	309	319	535	532	550	923	96.8	57.7				
France	198	180	187	109.9	105.8	2,422	1,938	2,162	4,176	3,342	3,727	124.9	112.0				
Greece	156	162	135	96.5	115.7	1,134	996	802	1,956	1,717	1,382	113.9	141.5				
Latvia	195	192	175	101.8	111.2	2,657	2,534	2,034	4,581	4,368	3,507	104.9	130.7				
Lithuania . .	277	278	249	99.7	111.4	3,279	3,086	2,632	5,654	5,321	4,537	106.3	124.6				
Luxemburg . .	4	4	8	98.9	53.6	70	61	108	121	104	186	115.7	64.7				
Norway	11	11	13	100.0	88.5	214	212	227	369	366	392	100.8	94.2				
Poland	326	347	11) 332	93.7	98.1	...	3,653	11) 3,500	...	6,299	11) 6,034	...	...		
Un. Kingdom:																	
Engl. and W.	92	92	101	100.5	91.3	1,658	1,680	1,792	2,858	2,897	3,090	98.7	92.5				
Sweden	630	626	602	100.6	104.7	14,337	12,224	11,568	24,719	21,077	19,944	117.3	123.9				
Switzerland . .	18	18	16	100.7	111.7	381	384	323	658	661	557	99.4	118.0				
Czecho-Slov. .	13	15	17	91.7	80.3	212	191	240	366	329	413	111.2	88.6				
Yugoslavia . .	167	169	141	99.2	118.5	1,334	1,272	1,118	2,300	2,194	1,927	104.8	119.3				
Canada	1,159	1,128	1,167	102.8	99.4	17,622	16,258	16,483	39,161	36,129	36,629	108.4	106.9				
Turkey . . . .	...	283	7) 200	...	...	2,551	2,503	7) 1,477	4,399	4,316	7) 2,547	101.9	172.7	

NOTES FOR TABLES OF WHEAT, RYE AND MESLIN.

† The years indicated are those of the harvest, single years referring to the Northern Hemisphere, double years to the Southern. — * Countries not included in the totals. — § In calculating the totals account has been taken of the probable area cultivated in some countries for which estimates of production are available but not those of area. — w) Winter crop. — s) Spring crop. — 1) Including Austria. — 2) Estimated on May 1. — 3) Provisional estimate. — 4) Including spelt. — 5) Area provided for in the Plan. — 6) Average of three years. — 7) Average of four years. — 8) Including Tigris. — 9) Cultivation by Europeans only. — 10) Area sown. — 11) Average of two years.

second half there was heavy and almost continuous rain and snow. The conditions retarded work, so that it was not always easy to proceed with re-sowing of the very large gaps left by the December frosts. The first fortnight of February was cold but dry and fairly sunny, and was more favourable for cultivation and re-sowing, which seems to have proceeded satisfactorily in most areas.

The Ministry of Agriculture stated that on January 31, 1939 8.2 million centals (13.6 million bushels) of the wheat surplus of the 1938 crop had been effectively reabsorbed by denaturation and export. Moreover, it is estimated that 6.6 million centals (11.0 million bushels) are required for the re-sowing operations. Allowing for a slight increase in bread-making as a result of the reduction of the milling tax, surplus stocks should have diminished by 15.9 million centals (26.5 million bushels) by the beginning of February.

Greece: The sowing of winter cereals was finished in all parts of the country at the end of January, in spite of unfavourable weather which had retarded work in certain areas.

Hungary: In the four weeks January 11 to February 7 the weather was mostly exceptionally mild. Rainfall was below normal over nine-tenths of the country. In

Area and Production of Barley.

COUNTRIES	† AREA						† PRODUCTION							
	1938 and 1939	1937 and 1938	Average 1932 to 1936 and 1932- 1933 to 1936- 1937	1938 and 1938-39		Aver. = 100	1938 and 1938-39	1937 and 1937-38	Average 1932 to 1936 and 1932-33 to 1936-37	1938 and 1938-39	1937 and 1937-38	Average 1932 to 1936 and 1932-33 to 1936-37	1938 and 1938-39	
				1937 and 1938 = 100	Aver. = 100								1937 and 1938 = 100	Aver. = 100
ooo acres						ooo centals				ooo bushels				
*Albania . . .	14	13	...	...	...	...	128	137	...	267	286	...	...
Germany a)	4,542	4,632	4,378	98.1	103.7	98,818	85,707	79,911	205,875	178,560	166,484	115.3	123.7	
Belgium . . .	76	85	86	89.6	88.7	1,967	1,886	2,120	4,098	3,929	4,418	104.3	92.8	
Bulgaria . . .	557	540	555	103.2	100.3	7,802	7,273	6,344	16,255	15,153	13,216	107.3	123.0	
Denmark . . .	981	911	864	107.7	113.5	29,983	24,238	21,734	62,466	50,496	45,279	123.7	138.0	
*Spain . . .	...	...	4,660	...	...	...	...	51,612	...	...	107,527	...	...
Estonia . . .	217	220	257	98.4	84.2	2,133	1,784	2,095	4,443	3,717	4,364	119.5	101.8	
Finland . . .	301	299	318	100.6	94.7	4,387	3,879	4,044	9,140	8,082	8,426	113.1	108.5	
France . . .	1,890	1,860	1,790	101.6	105.6	28,055	22,413	23,349	58,448	46,694	48,644	125.2	120.2	
Greece . . .	543	566	527	95.9	102.9	5,598	4,963	4,260	11,664	10,341	8,875	112.8	131.4	
Hungary . . .	1,127	1,155	1,151	97.6	97.9	14,708	12,278	14,636	30,643	25,580	30,492	119.8	100.5	
Ireland . . .	118	131	126	90.2	93.2	2,448	2,635	2,911	5,101	5,489	6,065	92.9	84.1	
Italy . . .	492	483	499	101.9	98.6	5,462	5,144	4,731	11,380	10,716	9,856	106.2	115.5	
Latvia . . .	440	448	461	98.1	95.4	4,863	4,815	4,299	10,131	10,032	9,957	101.0	113.1	
Lithuania . .	536	529	510	101.4	105.2	6,041	6,040	5,332	12,586	12,584	11,108	100.0	113.3	
Luxemburg . .	5	5	7	99.7	71.9	71	60	87	148	124	181	119.6	82.0	
Malta 2) . . .	5	5	5	99.9	96.3	102	114	102	213	238	213	89.6	99.9	
Norway . . .	148	149	146	99.3	101.5	2,746	2,848	2,523	5,721	5,933	5,256	96.4	108.9	
Netherlands .	116	121	86	95.4	134.7	3,219	2,978	1,939	6,706	6,204	4,040	108.1	166.0	
Poland . . .	2,910	3,046	2,950	95.5	98.6	30,233	30,058	31,566	62,986	62,622	65,764	100.6	95.8	
*Portugal . . .	...	180	176	...	...	...	875	901	...	1,822	1,877	...	...
Romania . . .	3,158	3,739	4,258	84.5	74.2	24,222	20,221	29,800	50,464	42,129	62,084	119.8	81.3	
Un. Kingdom:														
Engl. & W.	885	823	837	107.6	105.8	17,987	12,902	15,429	37,473	26,880	32,144	139.4	116.6	
Scotland . .	99	81	75	122.4	132.4	2,195	1,770	1,590	4,573	3,687	3,313	124.1	138.0	
N. Ireland . .	3	3	2	123.7	156.8	74	56	50	153	117	104	131.4	147.6	
Sweden . . .	272	255	260	106.8	104.9	5,876	4,555	4,671	12,241	9,490	9,731	129.0	125.8	
Switzerland . .	11	11	14	100.9	78.1	192	186	188	400	387	393	103.3	101.8	
Czecho-Slov. .	1,631	1,661	1,644	98.2	99.2	28,616	24,582	26,324	59,617	51,214	54,842	116.4	108.7	
Yugoslavia . .	1,026	1,030	1,040	99.6	98.6	9,287	8,446	9,096	19,349	17,596	18,950	110.0	102.1	
Total Europe .	22,089	22,788	22,846	97.0	96.7	337,085	291,831	299,131	702,274	607,994	623,199	115.5	112.7	
*U.S.S.R. (w) (s)	3,164	1,506	1,154	109.3	142.7	...	...	7,485	...	...	15,595	...	...
(s) 18,969		20,068	18,730	94.5	101.3	...	...	146,139	...	...	304,463	...	...
Canada . . .	4,454	4,331	3,870	102.8	115.1	49,076	39,900	34,922	102,242	83,124	72,754	123.0	140.5	
United States .	10,513	9,968	10,032	105.5	104.8	121,027	105,757	96,193	252,139	220,327	200,402	114.4	125.8	
Total N. Am. .	14,967	14,299	13,902	104.7	107.7	170,103	145,657	131,115	354,381	303,451	273,156	116.8	129.7	
*China . . .	...	14,721	16,155	...	...	...	140,466	174,466	...	292,642	363,473	...	...
Cyprus . . .	...	108	110	...	...	...	900	838	...	1,875	1,746	...	...
Chosen . . .	2,737	2,685	2,522	102.0	108.5	24,528	31,964	22,883	51,100	66,592	47,673	76.7	107.2	
*Iraq . . .	...	2,000	1,452	...	...	...	12,566	7,868	...	26,180	16,391	...	...
Japan . . .	1,892	1,811	1,942	104.5	97.4	30,807	34,727	35,424	64,182	72,349	73,802	88.7	87.0	
*Palestine . .	...	553	544	...	...	...	1,663	1,114	...	3,464	2,320	...	...
Syria & Leb. .	838	795	742	105.4	112.9	8,493	5,872	6,306	17,693	12,233	13,137	144.6	134.7	
*Transjord. . .	...	...	...	...	...	...	1,168	505	...	2,434	1,052	...	...
Turkey . . .	...	4,408	3,906	...	...	56,983	50,194	35,072	118,716	104,572	73,068	113.5	162.5
Total Asia . .	9,983	9,807	9,222	101.8	108.3	121,711	123,724	100,523	253,565	257,760	209,426	98.4	121.1	
Algeria . . .	2,909	3,093	3,229	94.1	90.1	12,944	13,118	16,718	26,967	27,329	34,830	98.7	77.4	
Egypt . . .	274	271	303	101.1	90.3	5,130	5,075	4,956	10,687	10,574	10,324	101.1	103.5	
It. East Afr.: .														
*Eritrea . . .	...	6) 104	62	...	...	...	6) 419	330	...	6) 873	687	...	...
*Libya . . .	367	304	367	121.0	100.1	...	850	981	...	1,771	2,044	...	...
F. Morocco . .	4,240	4,796	3,860	88.4	109.9	22,101	18,212	26,236	46,045	37,943	54,660	121.4	84.2	
Tunisia . . .	741	1,532	1,144	48.4	64.8	2,866	4,409	4,564	5,971	9,186	9,508	65.0	62.8	
Total Africa .	8,164	9,692	8,536	84.2	95.6	43,041	40,814	52,474	89,670	85,032	109,322	105.5	82.0	
Argent. (f) . .	(2,053)	(1,942)	(1,843)	105.7	111.4	9,700	11,321	14,583	20,209	23,585	30,381	85.7	66.5	
*Chile . . .	...	1,125	1,362	...	...	...	...	...	...	...	...	...	...
*Uruguay . . .	...	206	243	...	...	...	3,611	2,530	...	7,523	5,271	...	...
...	...	31	22	...	...	...	248	144	...	517	300	...	...
*Un. of S. Afr. *	...	...	73	...	...	...	555	652	...	1,156	1,357	...	...
*N. Zealand . .	...	...	19	...	...	...	543	327	...	1,131	681	...	...
TOTALS \$	56,328	57,711	55,868	97.6	100.8	681,640	613,347	597,826	1,420,100	1,277,822	1,245,484	111.1	114.0	

Area and Production of Oats.

COUNTRIES	† AREA					† PRODUCTION									
	1938 and 1938- 1939	1937 and 1937- 1938	Average 1932 to 1936 and 1932- 1933 to 1936- 1937	1938 % and 1938-39		1938 and 1938-39	1937 and 1937-38	Average 1932 to 1936 and 1932-33 to 1936-37	1938 and 1938-39	1937 and 1937-38	Average 1932 to 1936 and 1932-33 to 1936-37	1938 % and 1938-39			
				1937 and 1937- 1938 =100	Aver. 1938 =100							1937 and 1937- 1938 =100	Aver. 1938 =100		
ooo acres					ooo centals					ooo bushels					
*Albania.	29	24	239	226	768	705	
Germany a) . .	7,403	7,728	8,245	95.8	89.8	147,911	139,598	142,139	462,218	436,242	444,180	106.0	104.1		
Belgium . . .	527	521	609	101.1	86.6	13,692	11,468	16,420	42,788	35,839	51,312	119.4	83.4		
Bulgaria . . .	353	369	300	95.6	117.8	1,953	3,230	2,352	6,103	10,094	7,351	60.5	83.0		
Denmark . . .	924	930	943	99.4	98.1	25,353	22,595	21,682	79,228	70,610	67,757	112.2	116.9		
*Spain . . .	...	...	1,791	...	...	...	...	14,544	...	...	45,449	...	...
Estonia . . .	368	358	345	102.8	106.7	3,891	3,067	2,885	12,160	9,585	9,016	126.9	134.9*		
Finland . . .	1,144	1,125	1,140	101.7	100.3	18,012	16,039	14,915	56,287	50,121	46,610	112.3	120.8		
France . . .	8,101	8,039	8,226	100.8	98.5	120,135	95,826	103,821	375,418	299,455	324,439	125.4	115.7		
Greece . . .	383 ¹⁾	415 ¹⁾	334	92.4	114.6	3,484	3,122	2,323	10,886	9,755	7,258	111.6	150.0		
Hungary . . .	557	570	546	97.9	102.0	6,139	5,961	6,352	19,185	18,629	19,850	103.0	96.7		
Ireland . . .	570	573	605	99.5	94.3	12,394	12,841	13,193	38,731	40,128	41,229	96.5	93.9		
Italy . . .	1,107	1,076	1,078	102.9	102.7	13,870	13,663	11,748	43,345	42,696	36,712	101.5	118.1		
Latvia . . .	860	829	792	103.7	108.5	9,846	8,929	7,551	30,769	27,903	23,597	110.3	130.4		
Lithuania . .	877	861	866	101.9	101.3	9,259	8,549	7,970	28,936	26,715	24,905	108.3	116.2		
Luxemburg . .	62	64	67	96.4	92.6	992	861	995	3,100	2,692	3,109	115.2	99.7		
Norway . . .	211	211	226	99.7	93.2	4,007	4,155	3,982	12,521	12,985	12,444	96.4	100.6		
Netherlands .	361	363	332	99.6	108.9	8,091	8,294	6,470	25,284	25,918	20,217	97.6	125.1		
Poland . . .	5,623	5,669	5,499	99.2	102.3	58,565	51,652	56,714	183,015	161,411	177,231	113.4	103.3		
*Portugal . .	...	645	489	...	...	...	2,216	1,926	...	6,925	6,020	...	...
Romania . . .	1,609	1,939	2,001	83.0	80.4	12,397	11,305	15,226	38,739	35,328	47,581	109.7	81.4		
United Kingdom															
Engl. and															
Wales . . .	1,301	1,223	1,463	106.3	88.9	23,946	21,011	26,033	74,830	65,660	81,354	114.0	92.0		
Scotland . .	798	819	839	97.4	95.1	14,179	14,918	15,268	44,310	46,620	47,712	95.0	92.9		
N. Ireland .	296	257	278	115.4	106.6	6,489	5,438	6,025	20,279	16,993	18,827	119.3	107.7		
Sweden . . .	1,647	1,640	1,644	100.5	100.2	30,441	27,895	26,547	95,127	87,172	82,959	109.1	114.7		
Switzerland .	28	27	31	102.6	89.2	541	529	514	1,692	1,653	1,607	102.3	105.3		
Czecho-															
Slovakia . .	1,902 ¹⁾	1,925 ¹⁾	1,959	98.8	97.1	27,999	30,255	29,390	87,496	94,547	91,842	92.5	95.3		
Yugoslavia . .	894	854	893	104.6	100.1	7,199	6,514	6,987	22,496	20,356	21,834	110.5	103.0		
Total Europe .	37,906	38,385	39,261	98.8	96.6	580,785	527,715	547,502	1,814,943	1,649,107	1,710,933	110.1	106.1		
*U. S. S. R. . .	41,196 ²⁾	43,193	42,528	95.4	96.9	...	...	351,758 ³⁾	1,099,236	...	...
Canada . . .	13,010	13,048	13,558	99.7	96.0	126,270	91,270	114,667	394,593	285,220	358,336	138.3	110.1		
United States .	35,477	35,256	36,178	100.6	98.1	337,228	371,716	288,437	1,053,839	1,161,612	901,367	90.7	116.9		
Total N. Am. .	48,487	48,304	49,736	100.4	97.5	463,498	462,986	403,104	1,448,432	1,446,832	1,259,703	100.1	115.0		
*China . . .	...	2,428	2,529	...	...	...	18,794	19,356	...	58,732	60,488	...	...
Cyprus . . .	...	12	11	...	...	66	79	63	206	246	198	83.9	104.1
Syria & Leb. .	24	27	31	91.6	79.6	219	234	280	686	730	876	93.9	78.2		
Turkey . . .	...	554	483	...	...	7,441	4,939	4,145	23,254	15,436	12,952	150.6	179.5
Algeria . . .	450	477	459	94.3	98.1	3,486	3,061	3,179	10,892	9,565	9,935	113.9	109.6		
Fr. Morocco .	109	105	70	103.7	154.6	1,058	870	476	3,307	2,718	1,487	121.6	222.4		
Tunisia . . .	77	91	63	83.8	122.3	661	628	379	2,067	1,963	1,185	105.3	174.4		
Total N. Afr. .	636	673	592	94.5	107.5	5,205	4,559	4,034	16,266	14,246	12,607	114.2	129.0		
Argentina (1) .	(3,361)	(3,254)	(3,391)	103.3	99.1	15,873	15,190	17,883	49,604	47,468	55,885	104.5	88.8		
*Chile . . .	338	298	225	113.4	130.2	...	2,712	2,092	...	8,474	6,538	...	...
Uruguay . . .	261	221	187	118.0	139.4	1,729	1,065	770	5,402	3,328	2,405	162.3	224.6		
*Un. of S. Afr. 8)	...	...	521	...	...	...	1,870	2,242	...	5,845	7,007	...	...
*New Zealand . .	...	58	80	...	...	...	1,056	1,367	...	3,301	4,273	...	...
TOTALS \$	89,650	89,946	92,153	99.7	97.3	1,074,816	1,016,767	977,781	3,358,793	3,177,393	3,055,559	105.7	109.9		

† The years indicated are those of the harvest, single years referring to the Northern Hemisphere, double years to the Southern. — * Countries not included in the totals. — § In calculating the totals account has been taken of the probable area cultivated in some countries for which estimates of production are available but not those of area. — (1) Winter crop. — (2) Spring crop. — (3) Including Austria. — (4) Area sown. — (5) Barley and meslin. — (6) Area provided for in the Plan. — (7) Average 1934 to 1936. — (8) Average 1932 to 1935. — (9) Including Tigris. — (10) Area harvested. — (11) Cultivation by Europeans only. — (12) Average 1933/34 to 1936/37.

the first of the four weeks the snow melted completed in almost all parts of Hungary, and in the following three weeks the fields were without any cover, even during the frost (16° to 19° F.) of the last few days of this period.

On February 7 the crop condition of winter cereal seeds was good. No damage by frost had been reported. But the wide range between day and night temperatures constituted a permanent danger.

Ireland: January was almost continuously wet. Sowing was delayed but standing crops made reasonably good progress.

Italy: In the first half of January the crop condition of wheat and other winter cereals remained good. The temperature was generally low and there were heavy snowfalls. In the second half of the month the weather was milder and there was rain over a wide area. In some parts the growth of crops was considered excessive. The situation at the end of the month was good. The sowing of spring wheat was in progress.

Latvia: Temperatures in January were about two degrees above normal on the whole. Precipitation was 50 per cent. above the normal and rainfall varied from 1.4 to 2 inches. Conditions were rather favourable in the first half of the month when fields were snow-covered. Later, weather became warmer, rain fell and the snow melted rapidly. There was more snow at the end of the month but the thin cover did not remain long in the west of the country.

Lithuania: Weather conditions in January were fairly settled, with temperatures some degrees above freezing point, and favourable for the winter crops.

Romania: In the last week of January the weather was mild throughout the country. The snow in this period only escaped the thaw in the mountains. At the end of the month snow began to fall again. Crop condition of winter crops at this time was good. More snow was desired to protect crops and prevent premature growth. On February 10 crop condition was still good although the lack of snow cover caused some preoccupation. Soil moisture was sufficient.

United Kingdom: January was stormy and exceptionally wet, with widespread snowstorms in the Midlands and north and west of England and Scotland. The heavy rain caused extensive flooding, especially in the eastern counties and the Thames valley. In parts of Scotland the ground became waterlogged. Wheat on the whole stood the severe spell fairly well. Barley and oats suffered in certain areas and will have to be partly resown.

U. S. S. R.: Following cold weather throughout the first fortnight of January a warm, moist wave about the middle of the month brought a considerable rise in temperature in the European Territory. The day temperature rose above freezing point, to 40° F in the northwest, to 36° or 37° F in the centre and to 43° to 46° F in the south. The wave of warm, wet air caused first snow and then rain to fall. In some areas an ice-crust was formed.

The thaw lasted from three to four days in the west and centre and six to eight days in the south. In the east the thaw only lasted one day. The snow melted almost everywhere in the west and in the centre the depth of snow fell from 5-10 inches to 1-3 inches. The snow also completely disappeared in southern Ukraina, Crimea and North Caucasus. In the east the snow cover was more or less unaffected.

At the beginning of the third decade of January there was a sudden drop in temperature, which caused a crust to form over a large part of the territory, particu-

larly in the central zone, some parts of Ukraina and the lower Volga region. The condition of winter seeds deteriorated in the centre as a result of the ice formation.

In Ukraina tests made on January 10 with plants removed from the ground showed that no damage had been suffered.

At the beginning of February there was another considerable thaw. In some parts of the south the ice crust disappeared, but in the west and centre it still remained to a depth of about 1.5 inches but reaching 3 to 5 inches in some districts.

Cereals have wintered well in Ukraina, Crimea and North Caucasus, but the premature thaw has not been favourable. In the central and lower Volga regions conditions have not been so good. The young plants are reported to be rather thin, particularly wheat.

In the Asiatic territory the snow cover was adequate to protect the seeds from the cold.

America.

Argentina: The new estimate of the 1938-39 wheat crop issued on February 17, shows an increase of 2,205,000 centals (3,674,000 bushels) on the first estimate made in December. The crop is thus the largest ever obtained with the exception of that of 1928-29. Compared with the unusually low crop of 1937-38 and with the five year average, the increase is 73.0 per cent. and 38.6 per cent. respectively. The exceptionally large outturn of the year is mainly due to the unusually favourable conditions of the season and partly to the larger area cultivated. The increase in the latter over last year and the average was 8.6 per cent. and 16.0 per cent. respectively.

Canada: According to the most recent estimate, the area cultivated to buckwheat this year was 375,600 acres against 395,500 in 1937 and 390,100 on the average of the five years ending 1936; percentages, 95.0 and 96.3. The corresponding production is estimated at about 3,398,000 centals (7,079,000 bushels) against 3,718,000 (7,745,000) and 4,040,000 (8,417,000); percentages, 91.4 and 84.1.

United States: Weather was more favourable for the winter wheat crop in the second half of January especially in the eastern plains and the Lower Missouri Valley. Missouri was snow-covered and conditions improved in Oklahoma and Texas but the crop in much of Oklahoma remained poor. The outlook improved in Kansas except in the west centre. Conditions continued favourable along the Pacific Coast.

During the first days of February there were alternations of freezing and thawing in the southern Ohio Valley but in eastern parts of the winter wheat belt conditions were fair to satisfactory. Conditions improved south of Kansas though they were still poor in parts, especially in the eastern half of Oklahoma and parts of west-central Texas. There was a further improvement in the eastern half of Kansas but little change elsewhere.

During the second week of February conditions in the southern Ohio Valley were less favourable owing to alternations of freezing and thawing; elsewhere in the eastern belt prospects were fair to good. Winter wheat in Oklahoma and southwards improved with some exceptions. Some improvement was noticed in south west Kansas though the west was very dry and liable to soil-blowing. Top soil was dry in Nebraska but conditions were fair. Favourable snowfall was reported in the northwestern plains while conditions on the Pacific Coast were again favourable.

Uruguay: According to an official estimate, exportable wheat stocks in 1938-39 amount to about 2,205,000 centals (3,700,000 bushels).

Asia.

Cyprus: Excellent rains fell in December and cereal prospects were good.

India: In the Punjab at the end of the first week of February crop condition was unchanged. There had been light rain in January but the first week of February was dry and rain was badly needed.

In the Central Provinces harvesting had begun in some places in the first days of February. Light showers had fallen in the last week of January and there was moderate rain in Jubbulpore and Bilaspore. The cloudy weather during the latter two weeks had affected the crop in Gram Nimar and Balaghat.

Africa.

Algeria: Official estimates of sowings compared with last year are as follows: hard wheat 110 per cent., soft wheat 100 per cent., barley 110 per cent., oats 100 per cent. Hard wheat sowings are thus the largest recorded in Algeria and the total wheat area will also exceed that of former years; the barley area will be a little larger than it has been in the last five years and considerably above the 1937 minimum; the figure will probably be about equal to the 1932-36 average but still well below the 1927-31 average. The total area sown to winter cereals is the largest on record, exceeding the former record of 1937. Present indications show the expansion of the wheat crop compared with barley. This tendency is especially prominent in the case of hard wheat which declined in the years 1931 to 1934 as a result of the expansion in soft wheat. The latter declined in importance in 1938 and shows no change this year.

January was a favourable month with fine weather and normal temperatures. Sowings were finished at the end of the month except on high plateaux and on some native lands. Growth was vigorous on the coast and in the sub-littoral region (Tell). On high areas it was checked by cold. On poorly prepared native lands, there was danger of weed infestation. There have been no serious attacks by parasites. On the whole, crops looked well at the end of January.

Egypt: Growth of the wheat crop was on the whole satisfactory, notwithstanding lack of rain during January while the winter closure of irrigation canals was still in force. Formation of ears has begun in a few early fields in some localities. Manuring was still practised on areas not manured last month. Watering was finished in localities where artesian water was available. Crops were normal. Growth of the barley crop was progressing satisfactorily. Formation of ears has started in a few early cultivations. Manuring and watering from artesian wells were finished during the month.

French Morocco: After a spell of persistent rain in the first three weeks of December, conditions became more favourable in January. The winter sowings, which had been delayed by the rain, were finished everywhere at the end of January. Sprouting was good and growth satisfactory except in east Morocco, where grains sown without irrigation were beginning to show the effects of drought. On the whole, native sowings are about equal to those of last year with an increasing tendency in Sous and the Rabat district.

Tunisia: In January rainfall was rather heavy in the north but distinctly below average in the centre and south. Despite rather low temperatures, the cereal sowings looked well at the end of the month in all parts of the country.

Oceania.

Australia (Cable of February 15): The wheat harvest in Western Australia is completed. Slight damage is reported in a small part of the State. In South Australia the harvest is completed. Results are very satisfactory as to quality. In New South Wales during the early part of last month the weather was hot, but during the latter part of the month there was partial rainfall. In Victoria the harvest is completed. The weather was dry in the greater part of the State.

Current information on Maize.

Argentina: According to a report of the Department of Rural Economy and Statistics of the Argentine Ministry of Agriculture, issued on January 19, the condition of the maize crops in the first half of January was below average everywhere. The lack of rain and the very high temperatures of the first four days of the month seriously delayed sowing, especially in the greater part of Córdoba, in central Santa Fé and in parts of Entre-Ríos. Rains in the second half of January mitigated damage in these provinces and in the country as a whole and brought about a material improvement in crop condition.

Netherlands Guiana: As a result of excessive rain many maize plants were destroyed and had to be replaced by new sowings. Crop condition was fairly good.

Netherlands Indies: Java and Madura. — The Department of Agricultural Statistics of the Central Statistical Office communicates the following details on the maize area:—

	1938 acres	1937 acres
Area harvested in December	437,100	432,000
Area harvested from January 1 to December 31	4,956,800	5,112,900
Area of standing crops at the end of December	2,502,700	2,482,000

Indochina: At the end of December maize was in flower in North Annam. In Central and South Annam new crop was sown at the end of December and early in January. In the extreme south, harvesting was proceeding. Yields were light owing to drought at sowing time and to floods at earing.

In Cambodia harvesting on red lands was finished at the end of December. On river banks sowing progressed with the fall in the flood. Maize sown at the end of December and early in January was growing well.

In Cochinchina, owing to the slow retreat of the floods the areas available for dry season maize are less extensive than formerly. Growth of December sowings was good. Preparatory work continued in January and sowing progressed with the removal of the rice.

Kenya: In December dry and warm weather conditions were experienced in most districts, except in those around Nairobi where abnormal rain and cool weather prevailed.

Area and Production of Maize.

COUNTRIES	† AREA					† PRODUCTION							
	1938 and 1938- 1939	1937 and 1937- 1938	Aver. 1932 to 1936 and 1932- 1933 to 1936- 1937	% 1938 and 1938-39		1938 and 1938- 1939	1937 and 1937- 1938	Average 1932 to 1936 and 1932-33 to 1936/37	1938 and 1938- 1939	1937 and 1937- 1938	Average 1932 to 1936 and 1932-33 to 1936-37	% 1938 and 1938-39	
				1937 and 1937- 1938 = 100	Average = 100							1937 and 1937- 1938 = 100	Average = 100
ooo acres					ooo centals			ooo bushels					
*Albania . . .	227	208	...	...	...	3,020	2,666	...	5,393	4,760	...	...
Germany ¹⁾ . .	343	254	183	135.2	187.5	8,593	6,672	3,792	15,344	11,915	6,771	128.8	...
Bulgaria . . .	1,731	1,685	1,751	102.7	98.9	11,427	18,944	19,876	20,406	33,828	35,493	60.3	57.5
*Spain . . .	...	1,082	...	...	...	...	15,856	...	...	28,314	...	...
France . . .	848	854	842	99.3	100.7	14,040	11,344	10,838	25,071	20,257	19,353	123.8	129.5
Greece . . .	670 ^{a)}	652 ^{a)}	618	102.7	108.4	4,394	5,934	5,182	7,846	10,596	9,253	74.0	84.8
Hungary . . .	2,905	2,955	2,830	98.3	102.6	56,896	60,820	45,640	101,600	108,607	81,500	93.5	124.7
Italy . . . (4)	3,297	3,167	3,242	104.1	101.7	58,077	67,149	57,896	103,710	119,910	103,385	86.5	100.3
Italy . . . (5)	427	467	371	91.5	115.1	6,658	7,714	5,484	11,889	13,774	9,792	86.3	121.4
*Poland . . .	218	228	227	95.7	95.9	...	2,274	2,067	...	4,060	3,691	...	...
*Portugal . .	...	909	1,040	...	...	...	7,153	7,001	...	12,774	12,503	...	...
Romania . .	12,349	12,749	12,374	96.9	99.8	110,231	104,760	116,337	196,842	187,071	207,745	105.2	94.8
*Switzerland .	...	2	2	...	...	...	55	53	...	98	94	...	...
Czecho- (6)	271 ^{a)}	239 ^{a)}	209 ^{a)}	113.3	129.5	5,088	4,930 ^{a)}	3,427	9,087	8,804 ^{a)}	6,121	103.2	148.5
Slovakia (7)	176 ^{a)}	217 ^{a)}	173 ^{a)}	81.3	101.9	...	2,636 ^{a)}	1,996	...	4,707 ^{a)}	3,564	...	...
Yugoslavia .	6,584	6,649	6,371	99.0	103.3	97,159	117,636	95,831	173,499	210,065	171,128	82.6	101.4
Total Europe	29,425	29,671	28,791	99.2	102.2	372,563	405,903	364,303	665,294	724,827	650,541	91.8	102.3
*U. S. S. R. .	6,034 ^{a)}	6,618	8,463	91.2	71.3	...	...	81,924	...	...	146,293	...	...
Canada . . .	180	166	152	108.8	118.5	4,306	3,032	3,445	7,690	5,415	6,151	142.0	125.0
Unit. St. (11)	91,792	93,741	99,544	97.9	92.2	1,423,653	1,484,719	1,187,521	2,542,238	2,651,284	2,120,574	95.9	119.9
Unit. St. (12)	(82,106)	(81,483)	...	100.8	...	1,275,265	1,316,167	1,018,659	2,277,259	2,350,299	1,819,034	96.9	125.2
*Mexico . . .	...	...	7,526	...	...	...	...	39,128	...	...	69,872	...	...
Total N. Am.	91,972	93,907	99,696	97.9	92.3	1,427,959	1,487,751	1,190,966	2,549,928	2,656,699	2,126,725	96.0	119.9
*China . . .	...	11,201	...	...	...	...	...	137,824	...	...	246,115	...	...
Manchukuo .	...	3,445	2,839	...	...	51,704	44,000	39,487	92,329	78,572	70,513	117.5	130.9
*Palestine . .	...	18	14	...	...	...	...	191	...	...	341	...	...
*Syria & Leb.	...	48	54	...	...	...	...	599	...	1,070	928	...	...
*Transjord. .	...	...	...	...	...	...	...	2	...	...	3	...	...
Turkey . . .	...	1,117	1,016	...	...	15,753	11,929	11,239	28,130	21,301	20,069	132.1	140.2
Total Asia	...	4,562	3,855	...	...	67,457	55,929	50,726	120,459	99,873	90,582	120.6	133.0
Ital. East. Afr.	...	...	...	...	...	...	...	...	...	...	...	...	...
*Eritrea . .	...	25 ¹³⁾	26	...	...	...	86 ¹³⁾	184	...	154 ¹³⁾	329	...	...
*Somalia . .	...	...	34	...	...	...	...	317	...	...	565	...	...
Algeria . . .	15	16	19	95.8	80.0	83	78	114	148	140	204	105.7	72.4
Egypt . . . (14)	1,554	1,613	1,698	96.0	91.1	34,782	36,275	36,297	62,110	64,777	64,816	95.5	95.5
Egypt . . . (15)	...	6	7	...	...	...	127	141	...	227	251	...	...
Kenya (16)	114	113	122	100.7	93.5	1,772	1,936	1,893	3,165	3,457	3,379	91.5	93.6
French Morocco . .	1,068	1,120	963	95.3	110.9	4,255	3,561	4,171	7,598	6,360	7,449	119.5	102.0
*Tunisia (17)	...	67	48	...	...	...	132	123	...	236	220	...	...
Total N. Afr.	2,751	2,868	2,809	95.9	97.9	40,892	41,977	42,616	73,021	74,961	76,099	97.4	96.0
*Argentina (3)	(13,344)	(15,319)	(16,567)	87.1	80.5	...	97,533	193,978	...	174,166	346,391	...	...
tina (18)	...	7,307	11,641	...	...	...	...	...	...	...	...	...	...
*Chile . . .	...	107	123	...	...	...	1,238	1,490	...	2,211	2,661	...	...
*Madagascar .	...	280	205	...	...	...	2,756	1,825	...	4,921	3,259	...	...
*Un. of (16)	...	6,051	5,780	...	...	...	35,218	30,864	...	62,889	55,114	...	...
S. Afr. (19)	...	...	...	...	...	...	...	6,789	...	...	12,124	...	...
TOTALS § . .	128,710	131,008	135,151	98.2	95.2	1,908,871	1,991,560	1,648,611	3,408,702	3,556,360	2,943,947	95.8	115.8

† The years indicated are those of the harvest, single years referring to the Northern Hemisphere, double years to the Southern. — * Not included in the total. — § In calculating the totals account has been taken of the probable area cultivated in some countries for which estimates of production are available but not those of area. — 1) Including Austria. — 2) Estimation for the old territory. — 3) Area sown. — 4) Maize sown in spring. — 5) Maize sown in summer. — 6) Crop grown alone. — 7) Mixed crop. — 8) Average 1934 to 1936. — 9) Area fixed by the plan. — 10) Average 1932 to 1935. — 11) Maize for all purposes. — 12) Maize harvested as grain. — 13) Including Tigris. — 14) *Nih* maize. — 15) *Sefi* maize. — 16) Cultivation by Europeans. — 17) Maize and sorghum. — 18) Area harvested. — 19) Cultivation by natives.

Current information on Rice.

Argentina: In January the crop condition of rice was good on the whole, except in certain parts of Corrientes, where crops were affected by lack of rain.

British Guiana: It was reported in December that reaping of the rice crop was nearly over, but the outturn would be less than the last crop owing to the earlier heavy rains.

Burma (Telegram of February 16): The area harvested is now estimated at 12,529,200 acres, a very slight decrease on the maximum of 12,534,300 attained last season but 1.9 per cent. above the average of 12,296,000 for the five years ending 1936-37. The area sown was 12,820,100 acres, 0.3 per cent. below the 12,861,500 of last season but 1.1 per cent. above the five-year average of 12,682,000 acres. The area destroyed was the smallest of recent years, being only 290,900 acres, a decrease of 11.1 per cent. on the 327,200 of last year and one of 24.6 per cent. on the average of 386,000 acres. While there has been, since the previous month's report, a greater increase in the estimate of area destroyed than in that of area sown, crop condition this season has remained much better than last year and production attains the record of 13,388 million pounds of white rice and derivatives, 17.8 per cent. larger than the 11,363 million of 1937-38 and 10.0 per cent. larger than the five-year average of 12,168 million pounds. The surplus available for export is estimated at 7,952 million pounds of white rice and derivatives, 15.8 per cent. greater than the actual export of 6,864 million in 1938 and 6.9 per cent. above the average export of 7,437 million in the five years 1933-37. This season's estimated export surplus has been exceeded in recent years by actual exports only in 1934, when 8,465 million pounds were exported.

India: In Bengal in the last three weeks of January and first week of February the threshing of winter padi continued; the weather was dry. In Orissa there was light rain; harvesting of saradhi padi continued. Threshing also continued in Bihar, where there was also light rain.

In Madras, where there was little rain in the month ending February 4 save for moderate rain in the first week and subsequent light showers particularly in the South, sowing was proceeding. Crop condition was fair save in the Circars, where cyclone damage had occurred, the Carnatic and the South.

Netherlands Indies: Java and Madura. — The Department of Agricultural Statistics of the Central Statistical Office communicates the following details on the rice area:—

	1938 acres	1937 acres
<i>Area harvested in December:—</i>		
Wet padi	166,100	159,900
Dry padi	3,700	5,900
<i>Area harvested from January 1 to December 31:—</i>		
Wet padi	8,818,800	8,604,100
Dry padi	961,500	966,700
<i>Area of standing crops at the end of December:—</i>		
Wet padi	2,233,600	2,172,800
Dry padi	823,100	858,000

Indochina: The situation of the rice crops in December in the various parts of the Union, except Laos, was as follows.

Area and Production of Rice.

COUNTRIES	AREA					PRODUCTION OF ROUGH RICE							
	1938-39	1937-38	Average 1932-33 to 1936-37	% 1938-39		1937-38	1937-38	Average 1932-33 to 1936-37	1938-39	1937-38	Average 1932-33 to 1936-37	% 1938-39	
				1937- 1938	Aver- age							1937- 1938	Aver- age
ooo acres						ooo centals			ooo bushels of 45 lb.				
Bulgaria . . .	18	14	19	124.7	92.7	580	272	386	1,290	605	858	213.4	150.3
Greece. . . . ¹⁾	8	...	3 ¹⁾	265.0	...	209	...	37	464	...	82	...	564.4
Italy	367	357	339	102.7	108.1	15,982	17,445	15,390	35,516	38,767	34,199	91.6	103.8
U. S. S. R. . . . ²⁾	385	368	325	104.8	118.6 ³⁾	8,929	7,381	5,218 ⁴⁾	19,841	16,402	11,596	121.0	171.1
United States	1,068	1,088	856	98.2	124.7	23,536	24,017	18,683	52,303	53,372	41,518	98.0	126.0
Burma ⁵⁾ . . .	⁴⁾ 12,529	⁴⁾ 12,534	⁴⁾ 12,296	100.0	101.9	180,186	152,943	163,762	400,412	339,873	363,916	117.8	110.0
Chosen	3,947	4,017	4,092	98.3	96.5	98,541	109,645	72,465	218,975	243,651	161,031	89.9	136.0
India ⁵⁾	72,574	72,554	71,716	100.0	101.2	792,982	900,139	872,257	1,762,148	2,000,270	1,938,310	88.1	90.9
Japan.	7,893	7,877	7,849	100.2	100.6	269,517	271,361	251,933	598,914	603,012	559,839	99.3	107.0
Manchukuo	...	1,023	528	...	...	15,962	15,508	8,250	35,471	34,462	18,334	102.9	193.5
Siam ⁵⁾ ¹⁾	7,710	7,273	6,996	106.0	110.2	108,865	100,436	100,658	241,917	223,188	223,680	108.4	108.2
Egypt.	492	273	462	180.1	106.5	15,740	8,207	13,213	34,977	18,237	29,361	191.8	119.1

1) Sown area. — 2) Area planned. — 3) Final report. — 4) Area to mature. — 5) First report.

In Annam harvesting of tenth-month rice was finished everywhere in December; yields were satisfactory. Twelfth-month rice looked well and promised a good crop, except in Quang-ngai (South Annam). Preparations for fifth-month rice were going forward actively in North Annam and, at the end of the month planting out was finished on half the area to be planted. Planting out of third-month rice continued in good conditions, thanks to frequent rains, in Central and South Annam.

In Cambodia main season rice was harvested; with few exceptions, yields were larger than last year's.

In Cochinchina main and mid-season rices were growing normally and looked well. Newly planted out rice from flooded fields was vigorous. Harvesting of early rice was general.

In Tonkin, preparatory work for fifth-month rice was progressing. Many fields were planted out and the young plants grew well thanks to the favourable temperatures during the month.

Current information on Potatoes.

France: The damage done by the unusually severe frosts of December 19 and 20 has reduced the commercial or marketable crop. The early crops, however, do not appear to have suffered very severely from the frost. The wet conditions of the second half of January delayed spring plantings. The first half of February was cold and dry and more favourable for work.

Italy: Early potatoes were planted in January. Crop condition was good at the end of the month.

Argentina: Potatoes were in average to good condition in January.

Area and Production of Potatoes.

COUNTRIES	AREA					PRODUCTION							
	1938 and 1938-39	1937 and 1937-38	Average 1932 to 1936 and 1932-33 to 1936-37	1938 % and 1938-39		1938 and 1938-39	1937 and 1937-38	Average 1932 to 1936 and 1932-33 to 1936-37	1938 and 1938-39	1937 and 1937-38	Average 1932 to 1936 and 1932-33 to 1936-37	1938 % and 1938-39	
	ooo acres			1937 and 1937-38 = 100	Average 1938-39 = 100	ooo centals			ooo bushels of 60 lb.			1937 and 1937-38 = 100	Average 1938-39 = 100
*Albania . .	...	1	1)	...	...	...	72	24	...	120	40	...	...
Germany (including Austria) . .	7,652	7,674	7,531	99.7	101.6	1,181,682	1,298,527	1,048,253	1,969,430	2,164,169	1,747,054	91.0	112.7
Belgium . .	364	390	407	93.5	89.6	71,836	68,142	77,703	119,725	113,567	129,503	105.4	92.4
Bulgaria . .	49	54	36	90.9	135.8	1,575	3,220	2,056	2,625	5,366	3,427	48.9	76.6
Denmark . .	195	199	185	97.9	105.6	30,644	29,189	28,698	51,073	48,648	47,829	105.0	106.8
*Spain . .	...	2)	1,103	...	...	...	...	2)	110,742	...	2)	184,566	...
Estonia . .	193	187	175	103.3	109.9	21,994	21,729	20,050	36,656	36,214	33,416	101.2	109.7
Finland . .	226	214	203	105.5	111.6	29,101	30,589	26,925	48,501	50,981	44,874	95.1	108.1
France . .	3,468	3,555	3,483	97.6	99.6	376,865	350,787	341,849	628,096	584,633	569,736	107.4	110.2
*Greece . .	52	58	44	89.0	117.3	...	3,496	2,377	...	5,827	3,962	...	...
Hungary . .	720	729	722	98.7	99.7	51,086	56,424	41,340	85,141	94,039	68,899	90.5	123.6
Ireland . .	327	327	340	100.0	96.1	71,094	60,622	58,488	118,489	101,036	97,480	117.3	121.6
Italy . . (s)	85	78	70	107.8	120.0	8,051	7,487	3)	13,418	12,477	8,302	107.5	161.6
Latvia . . (s)	969	965	982	100.4	98.6	63,614	63,334	54,093	106,021	105,554	90,154	100.4	117.6
Lithuania . .	340	314	276	108.3	123.4	38,611	39,287	31,421	64,350	65,476	52,367	98.3	122.9
Luxembourg . .	460	456	439	100.8	104.8	46,699	55,335	44,376	77,830	92,223	73,958	84.4	105.2
Malta . .	41	43	41	94.9	100.4	6,220	4,527	4,047	10,367	7,545	6,745	137.4	153.7
Norway . .	9	10	8	89.0	111.7	629	755	521	1,049	1,258	869	83.4	120.7
Netherlands: p. for consumption . .	132	128	123	103.2	107.9	20,671	18,972	20,612	34,452	31,619	34,352	109.0	100.3
p. for starch . .	274	278	305	98.7	89.9	...	...	...	...	...	...	...	...
Poland . .	69	63	62	111.2	111.7	62,281	44,200	50,749	103,799	73,665	84,580	106.6	95.7
*Portugal . .	7,488	7,365	6,908	101.7	108.4	761,881	886,724	699,124	1,269,777	1,477,843	1,165,183	85.9	109.0
*Romania: single crop . .	...	75	80	...	...	...	13,141	12,686	...	21,902	21,143	...	...
p. with maize . .	476	533	502	89.2	94.8	...	42,463	38,507	...	70,771	64,178	...	...
United Kingdom: England & Wales . .	...	242	214	...	...	...	3,977	3,087	...	6,628	5,144	...	...
Scotland . .	475	455	486	104.3	97.7	78,086	70,022	71,313	130,144	116,704	118,854	111.5	109.5
*Northern Ireland . .	135	135	141	99.5	95.5	20,563	20,653	22,938	34,272	34,421	38,229	99.6	89.6
Sweden . .	123	125	136	98.5	90.9	...	19,443	20,916	...	32,405	34,860	...	...
Switzerland . .	...	333	328	...	...	41,283	41,603	42,751	68,803	69,337	71,250	99.2	96.6
Czechoslovakia (s)	123	121	115	101.8	106.9	16,513	19,353	15,777	27,521	32,255	26,295	85.3	104.7
Slov. (s)	102	104	98	97.9	103.7	9,694	9,157	7,197	16,157	15,261	11,995	105.9	134.7
*Yugoslavia . .	1,785	1,810	1,746	98.6	102.2	207,001	263,392	193,119	344,994	438,978	321,859	78.6	107.2
Total Europe . .	26,014	25,987	25,210	100.1	103.1	3,217,674	3,478,268	2,922,740	5,362,690	5,796,999	4,871,141	92.5	110.1
*U. S. S. R. . .	16,578	18,303	16,235	90.6	102.1	...	...	1,174,642	...	...	1,957,698	...	...
Canada . .	522	531	525	98.2	99.3	35,938	42,547	41,708	59,897	70,912	69,513	84.5	86.2
United States . .	3,008	3,174	3,432	94.8	87.6	221,578	236,483	221,176	369,297	394,139	368,627	93.7	100.2
Cyprus . .	...	7	6	...	...	672	682	442	1,120	1,136	737	98.6	152.0
*Palestine . .	...	2	1	...	...	...	210	51	...	350	85	...	...
*Syria and Lebanon . .	...	30	17	...	...	...	2,636	869	...	4,393	1,447	...	...
Turkey . .	...	136	115	...	...	6,588	4,111	3,009	10,979	6,851	5,014	160.3	219.0
Italian East Africa: *Eritrea . .	...	1)	1)	...	...	...	2	5	...	4	8	...	...
Algeria . . (s)	17	18	18	94.9	96.7	1,468	1,172	952	2,447	1,954	1,587	125.2	154.2
*Egypt . . (s)	...	26	23	...	...	...	1,726	1,247	...	2,876	2,078	...	...
*Tunisia . .	...	10	8	...	...	...	995	768	...	1,659	1,280	...	...
Dutch Indies: *Java and Madura . .	19	26	42	73.5	46.1	...	...	1,772	...	...	2,953	...	...
*Chile . .	...	126	128	...	...	...	9,644	10,266	...	16,073	17,109	...	...
*New Zealand . .	...	23	24	...	...	...	3,288	2,762	...	5,480	4,604	...	...
TOTALS . .	29,704	29,853	29,306	99.5	100.3	3,483,918	3,763,263	3,190,027	5,806,430	6,271,991	5,316,619	92.6	109.2

* Not included in the totals. — s) Early potatoes. — t) Late potatoes. — 1) Under 1,000 acres. — 2) Average 1932 to 1935. — 3) Average 1935 and 1936.

Cane-sugar Production in 1938-39.

Unlike beet-sugar production, cane-sugar production is, according to the first estimates, slightly larger in all continents that last season and only a very little less than the exceptionally large crop of 1936-37.

Production of Cane-sugar.

COUNTRIES	1938-39 1)	1937-38	Average of 1932-33 to 1936-37	1938-39 1)	1937-38	Average of 1932-33 to 1936-37	% 1938-39	
							1937-38	Average
	thousand centals			short tons			= 100	= 100
AMERICA.								
Antigua.	573	493	523	29,000	24,640	26,125	116	110
Argentina.	10,362	8,170	8,074	520,000	408,480	403,673	127	128
Barbados.	2,866	2,496	2,543	140,000	124,784	127,134	115	113
Brazil.	26,456	22,827	19,949	1,300,000	1,141,300	997,456	116	133
Cuba.	61,730	67,199	55,589	3,100,000	3,360,000	2,779,408	92	111
Ecuador.	419	397	402	21,000	20,000	20,081	106	104
United States (La. & Fl.)	11,140	9,240	6,408	557,000	462,000	320,439	121	174
British Guiana. . . .	3,968	4,079	3,724	200,000	204,000	186,173	97	107
Jamaica.	2,588	2,647	1,803	129,416	132,371	90,163	98	143
Martinique.	1,213	1,213	1,053	61,000	61,000	52,646	100	115
Mexico.	7,716	7,113	5,483	390,000	355,650	274,142	108	141
Peru.	10,141	9,061	8,933	510,000	453,000	446,652	112	114
Puerto Rico.	17,417	19,936	18,392	870,000	996,800	919,577	87	95
Dominican Republic. .	9,083	9,149	9,131	454,000	457,000	456,557	99	99
St. Kitts.	717	626	642	35,840	31,287	32,125	115	112
Trinidad.	3,527	2,993	2,925	180,000	149,662	146,248	118	121
Venezuela.	540	540	486	27,000	27,000	24,295	100	111
Total America. . . .	170,456	168,179	146,060	8,524,256	8,408,974	7,302,894	101	117
ASIA.								
Taiwan.	32,959	25,904	18,313	1,648,000	1,295,000	915,628	127	180
India.	65,037	70,896	72,823	3,250,000	3,544,800	3,641,086	92	89
Japan.	3,286	2,576	2,202	164,300	128,689	110,117	128	149
Java.	34,172	30,841	19,888	1,710,000	1,542,037	994,406	111	172
Philippines.	21,605	22,064	24,316	1,080,000	1,103,200	1,215,777	98	89
Total Asia.	157,059	152,281	137,542	7,852,300	7,613,826	6,877,014	103	114
AFRICA.								
Egypt.	3,527	3,532	3,223	176,000	176,600	161,171	100	109
Madagascar.	265	282	243	13,000	14,100	12,000	94	109
Mauritius.	7,088	6,919	5,593	354,400	345,920	279,627	102	127
Reunion.	1,764	1,764	1,632	90,000	90,000	81,604	100	108
Union of South Africa	10,420	10,144	7,890	521,000	507,219	394,509	103	132
Total Africa.	23,064	22,641	18,581	1,154,400	1,133,839	929,036	102	124
OCEANIA.								
Australia.	17,637	17,829	14,692	880,000	891,400	734,582	99	120
Hawaii.	20,701	20,272	20,311	1,035,000	1,013,600	1,015,529	102	102
Fiji Is.	3,086	3,197	2,905	150,000	160,000	145,264	97	106
Total Oceania. . . .	41,424	41,298	37,908	2,065,000	2,065,000	1,895,375	100	109
TOTALS.	392,003	384,399	340,091	19,595,956	19,221,639	17,004,319	102	115

1) Approximate data.

The principal countries responsible for the increase are in America, Argentina, Brazil, the United States and Peru; in Asia, Taiwan and Java; in Africa, the Union of South Africa and Mauritius; and in Oceania Hawai.

Adding the estimated production of cane-sugar to that of beet-sugar, the smaller beet-sugar outturn is more than offset by the larger outturn of cane-sugar, so that the resulting total for the 1938-39 season is practically equal to the aggregate production of 1937-38 and the outturn of 1936-37. Accordingly, this years' figure is well above the average of the preceding five seasons.

Production of Beet-sugar (raw).

COUNTRIES	PRODUCTION (Sept. 1 - January 31)		TOTAL PRODUCTION DURING THE SEASON			% 1938-39	
	1938-39	1937-38	1938-39 a)	1937-38	Average 1932-33 to 1936-37	1937-38	Average
	thousand cents					= 100	= 100
Germany	b) 40,211	b) 47,063	c) 46,817	52,193	37,859	—	—
Belgium	b) 4,215	b) 5,188	4,266	5,234	5,488	82	78
Bulgaria	—	—	444	621	441	72	101
Denmark	—	—	4,189	5,269	4,328	79	97
Spain	—	—	2,976	3,331	5,412	89	55
Finland	b) 290	b) 187	d) 333	d) 243	197	137	169
France	—	—	19,842	21,367	21,913	93	91
Hungary	c) 2,805	2,448	3,042	2,448	2,731	124	111
Ireland	1,344	2,008	1,603	2,066	1,418	78	113
Italy	8,832	7,852	8,832	7,852	7,269	112	122
Latvia	—	—	735	996	937	74	78
Lithuania	—	—	459	633	400	72	114
Netherlands	4,481	5,189	4,808	5,202	5,300	92	91
Poland	b) 12,027	b) 12,378	12,125	12,391	9,299	98	130
Romania	b) 3,424	b) 1,668	3,682	1,808	2,374	204	155
United Kingdom	7,203	9,386	7,205	9,387	11,688	77	62
Sweden	—	—	6,442	7,634	6,198	84	104
Switzerland	—	—	324	267	189	121	171
Czecho-Slovakia	—	—	c) 11,585	16,720	13,621	—	—
Yugoslavia	—	—	1,196	824	1,826	230	104
<i>Total Europe 1).</i>	—	—	141,605	156,486	138,888	90	102
U S. S. R.	—	—	55,116	55,116	32,060	100	172
<i>Total Europe 2).</i>	—	—	196,860	211,766	170,948	93	115
Canada	—	—	1,642	1,369	1,475	120	111
United States	—	—	34,647	27,478	28,454	126	122
<i>Total North America.</i>	—	—	36,289	28,847	29,929	126	121
Japan	—	—	1,146	1,113	769	103	149
Manchukuo	—	—	463	260	85	178	547
Turkey	—	—	1,323	1,263	1,288	105	103
<i>Total Asia</i>	—	—	2,932	2,636	2,142	111	137
GENERAL TOTALS / 1)	—	—	180,826	187,969	170,959	96	106
/ 2)	—	—	235,942	243,085	203,019	97	116

1) Not including U. S. S. R. — 2) Including U. S. S. R. — a) Approximate data. — b) Production to the end of December. — c) Present territory. — d) Licht's estimate.

Current information on Sugar.

Argentina: In January the crop condition of sugar-beet was still good.

The condition of sugar-cane plantations in January promised a good crop, except to the north of Santa Fé where the crop had been affected by the summer drought.

Barbados: It was reported in December that the coming sugar crop was in excellent condition but more sun would be beneficial. It was expected that some factories would begin grinding shortly.

British Guiana: In December most of the sugar estates had completed grinding, and good yields had been obtained.

Netherlands Guiana: The condition of sugar-cane was generally satisfactory and yields normal.

Trinidad: It was reported in December that sugar grinding was expected to commence towards the end of January. Weather conditions during the month continued to be rather adverse.

Area and Production of Sugar-beet.

COUNTRIES	AREA					PRODUCTION							
	1938	1937	Average 1932 to 1936	% 1938		1938	1937	Average 1932 to 1936	1938	1937	Average 1932 to 1936	% 1938	
				1937 = 100	Average = 100							1937 = 100	Average = 100
			ooo acres					ooo centals			ooo short tons		
Germany 1)2)	1,337	1,225	945	109.2	141.4	367,108	367,679	242,829	18,355	18,384	12,141	99.8	151.2
Belgium . .	122	119	128	102.4	94.9	26,492	30,336	35,133	1,325	1,517	1,757	87.3	75.4
Bulgaria . .	29	26	19	111.3	149.9	3,117	3,979	3,248	156	199	162	78.3	96.0
Denmark 2)	146	99	99	147.5	147.0	29,763	33,169	34,871	1,488	1,658	1,744	89.7	85.4
Finland 3)	13	8	7	154.6	183.4	2,888	1,940	1,584	144	97	79	148.9	182.4
France 4)	772	786	785	98.2	98.3	179,020	191,063	196,121	8,951	9,553	9,806	93.7	91.3
Hungary . .	109	116	112	94.2	97.7	23,218	22,324	20,322	1,161	1,116	1,016	104.0	114.3
Ireland . . .	48	62	39	78.2	124.8	...	13,063	9,227	...	653	461	...	...
Italy	336	330	231	101.8	145.1	71,723	77,500	54,000	3,586	3,875	2,700	92.5	132.8
Latvia . . .	36	34	31	105.1	114.5	5,071	6,173	5,493	254	309	275	82.1	92.3
Lithuania . .	20	20	14	99.6	144.2	3,166	4,094	2,529	158	205	126	77.3	125.2
Netherlands .	104	104	106	100.8	98.9	34,613	34,875	37,178	1,731	1,744	1,859	99.2	93.1
Poland . . .	380	363	280	104.3	135.4	...	71,553	52,265	...	3,578	2,613	...	...
Romania . . .	117	73	81	160.2	144.3	...	10,997	11,828	...	550	591	...	...
Unit. King.: Engl. and W.	328	306	346	107.4	94.8	47,152	56,627	72,869	2,358	2,831	3,644	83.3	64.7
Scotland . .	7	7	5	101.3	153.1	1,411	1,523	1,015	71	76	51	92.6	139.0
Sweden . . .	125	137	121	91.9	104.0	40,430	45,787	39,332	2,021	2,289	1,967	88.3	102.8
Switzerland .	...	6	4	...	...	...	1,907	1,368	...	95	68	...	...
Czecho-Slov.	408	448	376	91.1	108.5	...	131,992	86,102	...	6,599	4,305	...	...
Yugoslavia . .	72	52	80	136.6	89.5	...	8,914	12,454	...	446	623	...	...
U. S. S. R. .	5) 2,916	5) 2,943	3,169	99.1	92.0	...	465,177	264,330	...	23,259	13,216	...	...
Canada . . .	48	47	51	102.6	94.6	10,540	8,360	9,826	527	418	491	126.1	107.3
U. S. A. . .	931	752	811	123.8	114.8	225,840	174,980	178,220	11,292	8,749	8,911	129.1	126.7
Turkey . . .	...	73	56	...	...	...	6,415	8,101	...	321	405	...	...

1) Including Austria. — 2) Not including crops for seed. — 3) Sugar-beet for factories. — 4) Including beets for distilling. — 5) Figures established from the Plan.

The Netherlands Indies: Java. — In the second half of January rainfall was generally heavy except in certain districts such as Kediri, where it was moderate. Flooding occurred in some districts and there was further lodging. Growth of canes was variable, being satisfactory in certain districts such as Pasoeroean, but mediocre in others such as Kediri and Djokja, while in many districts crop condition and the colour of the canes were poor. The yellow spot disease was more widespread.

In the first half of February the rainfall was variable particularly in the east of Java. At the beginning of the month rain was so heavy that some flooding occurred. But towards the middle of the month the weather was sunning. The growth of the cane was on the whole satisfactory. In the Djokja and north coast districts only was the condition of reserve plantations not so good owing to excessive humidity (Aneta).

Indochina: The cutting of the cane had begun in December in Annam and Tonkin. Yields varied from average to good.

Leeward and Windward Islands: It was reported in December that a good sugar crop was expected in Antigua. In St. Kitts the crop was stated to be in excellent condition, while it was estimated that the St. Lucia sugar crop would be below expectations owing to the abnormal weather recently experienced in the island.

Egypt: The sugar-cane crop is approaching maturity. Cutting of the crop for the sugar factories is in full swing, the factories having started work at the beginning of January. Crop condition is normal.

Mauritius: It was reported in December that dry weather continued and if rain was not forthcoming shortly the new crop was likely to be seriously affected, particularly in the north of the island.

World Wine Production in 1938.

The only production estimate received since last month is that of Italy which amounts to 910,697,000 Imperial gallons (1,093,665,000 American gallons). This figure is not strictly comparable with those of the last two years and it points out an anomaly in the figure of vinification in 1938 previously published. In view of this and pending the statistical corrections necessary for estimating exactly the relative importance of wine production in 1938, the general table of wine production has not been given this month. The other two tables have also been held over since no new figures have been received.

A very rough estimate based on present estimates and recent information on the size of crops would put total production of wine in 1938 in the Northern Hemisphere, excluding the U. S. S. R., at 3,950 to 4,050 million Imperial gallons (4,750 to 4,900 million American gallons). This would be 7 to 10 per cent. larger than that of last year and slightly above the five-year (1932-36) average (3,950 million Imperial gallons or 4,750 million American gallons). After allowing for the small stocks remaining in certain countries at the end of the season, supplies are about or more than 200 (250) million gallons in excess of "normal" disappearance, no allowance being made in the latter for special provisions intended to absorb all or part of the surplus.

Countries with surplus supplies include France and Algeria, Romania, Bulgaria, the United States, Tunisia, French Morocco and, probably, Portugal,

Greece and Yugoslavia although Portugal and the United States have limited production of certain types (Port) or of wine as a whole. The situation in Spain is too obscure to be considered in this summary. Italy and Hungary have average or small supplies compared with normal consumption while the importing countries of central Europe—Germany (including Austria), Switzerland and Czechoslovakia—have rather light crops.

Little information is available on production in the Southern Hemisphere. The outturn appears likely to be smaller than last year and, in some cases, below average, as in Argentina, but the large production of 1938 will leave large stocks weighing on the market in several countries, particularly Argentina, Brazil, Chile and Australia.

P. V.

Current information on Vines.

France: The exceptionally severe cold of the last days of December caused damage to buds and even to shoots of one year old of which the wood was not well formed. In some cases, productive shoots must be grafted on old stocks. On the whole, however, damage was not very considerable. January, on the whole, was very mild with heavy and almost continuous rain in the second half which delayed work and sometimes caused floods. The first half of February, however, was cold and dry. Winter pruning was approaching completion in the south in the middle of the month.

Argentina: The condition of vineyards in January was good in Mendoza Province and Rio Negro territory. In the latter a larger crop of grapes than last year was expected. Lack of rain and high temperatures in December damaged vineyards in San Juan Province where condition in January was average. In the other producing centres of the country grape crop prospects in January were good. The picking of table grapes was in progress in January in several provinces.

Algeria: The weather in January was fine, so that pruning, winter cultivation, application of fertilizers and root-cleaning proceeded well.

French Morocco: Pruning and ploughing continued during January.

Current information on Olives.

France: Frosts at the end of December interrupted olive picking caused shedding and lowered the quality. January, which was very mild, was more favourable for the completion of the harvest.

Italy: Olive picking continued in the first half of January in Central Italy and Liguria. Frost did some damage. Picking was practically finished at the end of the month.

Argentina: In January the olive crop prospects were good in the principal producing centres, particularly La Rioja and Catamarca and Rio Negro Territory.

Algeria: At the end of January olive picking was finished in all parts. The crop is poor. In Constantine production is estimated as about half that of last year.

Quality, however, seems good. In olive-groves pruning had begun and preparation of stocks for grafting was in progress.

French Morocco: Olive picking was finished at the end of January. The crop was light.

World Production of Olive-oil.

COUNTRIES	1938-39	1937-38	Average 1932-33 to 1936-37	% 1938-39	
				1937-38 = 100	Average 1932-33 to 1936-37 = 100
	centals	centals	centals	%	%
Albania	* 33,100	* 37,500	37,500	88	88
Spain	* 7,054,800	* 8,377,600	7,944,800	84	89
France	a) 209,400	a) 176,400	166,700	119	126
Greece	* 1,736,100	4,133,000	2,306,100	42	75
Italy	* 3,747,900	6,109,500	4,263,500	61	88
Portugal	* 771,600	2,144,200	938,700	36	82
Yugoslavia	* 77,200	158,700	82,500	49	94
<i>Total Europe</i>	<i>13,630,100</i>	<i>21,136,900</i>	<i>15,739,800</i>	<i>64</i>	<i>87</i>
Argentina	* 1,300	* 1,300	1,100	100	120
United States	* 19,800	17,600	17,600	112	112
<i>Total America</i>	<i>21,100</i>	<i>18,900</i>	<i>18,700</i>	<i>112</i>	<i>113</i>
Cyprus	* 44,100	55,100	20,300	80	217
Italian Aegean Islands	* 22,000	24,300	20,300	91	109
Palestine	223,500	208,300	66,100	108	341
Syria and Lebanon	* 220,500	425,500	242,300	52	91
Turkey	881,900	1,364,300	622,400	65	142
<i>Total Asia</i>	<i>1,394,000</i>	<i>2,077,500</i>	<i>971,400</i>	<i>67</i>	<i>144</i>
Algeria	131,200	353,000	248,500	37	53
Libya	* 55,100	88,200	54,200	62	102
French Morocco	* 176,400	* 198,400	204,100	89	86
Tunisia	661,400	1,102,300	1,080,300	60	61
<i>Total Africa</i>	<i>1,024,100</i>	<i>1,741,900</i>	<i>1,587,100</i>	<i>59</i>	<i>65</i>
World Production of Olive-oil	16,069,300	24,975,200	18,317,000	64	88

* Rough unofficial estimate. — a) Data calculated on the basis of olive production.

Current information on Flax.

Italy: Flax crops in Sicily and Sardinia were making good progress at the end of January.

Argentina: The latest estimate of linseed production in 1938-39, cabled on February 17 by the Argentine Government show a decrease of 1,500,000 centals (2,800,000 bushels) on the former estimate of mid-December. The new figure is only 0.7 per cent. above the final figure for last season but is 10.3 per cent. below the previous five-year average. Production in the present season was obtained from a 5.9 per cent. smaller area than in 1937-38 and 9.2 per cent. smaller than the average. Moreover, weather conditions were not very favourable for flax crops, which also suffered severely from insect pests.

India: Toward the end of the second decade of January condition of linseed was reported as fairly good.

Area and Production of Flax.

COUNTRIES	† AREA					† PRODUCTION							
	1938 and 1938-39	1937 and 1937-38	Aver. 1932 to 1936 and 1932-33 to 1936-37	% 1938 and 1938-39		1938 and 1938-39	1937 and 1937-38	Aver. 1932 to 1936 and 1932-33 to 1936-37	1938 and 1938-39	1937 and 1937-38	Aver. 1932 to 1936 and 1932-33 to 1936-37	% 1938 and 1938-39	
	ooo acres				Aver. age = 100	ooo centals			ooo pounds				Aver. 1937/ 1938 = 100
Germany . . .	111 ²⁾	151 ²⁾	50	—	—	1 ¹⁾ 643 ²⁾	766 ²⁾	354 ¹⁾	64,335 ²⁾	76,635 ²⁾	35,412 ²⁾	—	—
Belgium . . .	77	69	40	110.9	191.0	781	524	280	78,064	52,430	28,049	148.9	278.3
Bulgaria . . .	10	10	3	98.8	289.6	9	14	4	939	1,408	440	66.7	213.2
Estonia . . .	58	77	55	74.9	106.6	168	226	155	16,798	22,643	15,544	74.2	108.1
*Finland 4)	8	8	11	99.0	74.0	...	23	36	2,278	3,552	...	...	...
France . . .	101	69	59	146.3	170.0	518	418	332	51,767	41,740	33,250	124.0	155.7
Hungary . . .	9	9 ¹⁾	8	94.2	112.9	37	37 ¹⁾	29	3,715	3,692 ¹⁾	2,886	100.6	128.7
Ireland . . .	4	4	3	92.3	144.4	18	19	12	1,814	1,859	1,203	97.6	150.8
Italy . . .	17	15	10	112.1	170.2	80	63	48	7,974	6,281	4,813	127.0	165.7
Latvia . . .	162	171	126	94.5	128.6	473	510	359	47,316	50,971	35,878	92.8	131.9
Lithuania 4)	192	218	160	88.2	120.3	568	691	511	56,844	69,082	51,100	82.3	111.2
Netherlands . .	50	43	18	115.9	283.5	376	320	139	37,602	32,047	13,941	117.3	269.7
*Poland . . .	365	360	273	101.5	134.0	...	840	706	...	84,014	70,596	...	...
*Romania . . .	37	53	62	70.0	60.1	...	192	180	...	19,180	17,996	...	...
Utd. Kingd.:													
* N. Ireland . .	21	19	17	107.5	121.2	...	94	85	...	9,379	8,476	...	...
*Czecho-Slovak.	40	48	26	82.7	150.3	...	244	127	...	24,361	12,674	...	...
*Yugoslavia . .	...	34	30	...	...	...	244	234	...	24,402	23,426	...	...
Total Europe . .	791	836	532	94.4	149.1	3,671	3,588	2,223	367,168	358,797	222,516	102.5	165.0
*U. S. S. R. 6)	7 ¹⁾ 4,543 ¹⁾	5,109	5,570	88.9	81.6	...	11,200	11,729	...	1,119,952	1,172,894	...	...
Egypt . . .	9	6	4	143.4	209.9	71	44	28	7,072	4,421	2,849	160.0	248.3
TOTALS . . .	800	842	536	94.7	149.5	3,742	3,632	2,251	374,240	363,218	225,365	103.2	166.0

Linseed.

COUNTRIES	† AREA					† PRODUCTION							
	1938 and 1938-39	1937 and 1937-38	Aver. 1932 to 1936 and 1932-33 to 1936-37	% 1938 and 1938-39		1938 and 1938-39	1937 and 1937-38	Aver. 1932 to 1936 and 1932-33 to 1936-37	1938 and 1938-39	1937 and 1937-38	Aver. 1932 to 1936 and 1932-33 to 1936-37	% 1938 and 1938-39	
	ooo acres				Aver. age = 100	ooo bushels of 56 lb.			ooo bushels of 56 lb.				Aver. 1937/ 1938 = 100
Germany . . .	111 ²⁾	151 ²⁾	50	—	—	1 ¹⁾ 502 ²⁾	923 ²⁾	334 ¹⁾	897 ²⁾	1,648 ²⁾	597 ²⁾	—	—
Belgium . . .	77	69	40	110.9	191.0	355	302	225	634	539	403	117.5	157.4
Bulgaria . . .	10	10	3	98.8	289.6	25	37	16	45	67	29	67.1	156.8
Estonia . . .	58	77	55	74.9	106.0	196	222	168	350	396	299	88.5	117.0
*France . . .	101	69	59	146.3	170.0	...	...	239	...	...	427	...	...
Hungary . . .	19	16 ¹⁾	23	119.0	84.4	143	98 ¹⁾	118	255	176 ¹⁾	210	144.9	121.4
Italy . . .	27	20	12	134.2	230.7	147	113	59	263	201	106	130.6	247.5
Latvia . . .	162	171	126	94.5	128.6	450	493	333	803	880	594	91.2	135.2
Lithuania 4)	192	218	160	88.2	120.3	650	785	608	1,161	1,401	1,085	82.9	107.0
*Netherlands . .	50	43	18	115.9	283.5	...	275	121	...	491	216	...	...
*Poland . . .	365	360	273	101.5	134.0	...	1,660	1,255	...	2,964	2,241	...	...
*Romania . . .	37	53	62	70.0	60.1	...	161	240	...	287	429	...	...
*Czecho-Slovak.	40	48	26	82.7	150.3	...	199	99	...	356	176	...	...
*Yugoslavia . .	...	...	...	...	...	...	29	23	...	52	40	...	...
Total Europe . .	656	732	469	89.5	140.2	2,468	2,973	1,861	4,408	5,308	3,323	83.0	132.7
*U. S. S. R. 9)	7 ¹⁾ 5,605 ¹⁾	6,002	6,386	93.4	87.8	...	...	10 ¹⁾ 16,359	...	...	10 ¹⁾ 29,213	...	...
Canada . . .	221	241	343	91.7	64.5	778	434	865	1,389	775	1,545	179.3	89.9
United States . .	954	934	1,509	102.1	63.2	4,576	3,970	4,913	8,171	7,089	8,774	115.3	93.1
Total N. Am. . .	1,175	1,175	1,852	100.0	63.5	5,354	4,404	5,778	9,560	7,864	10,319	121.6	92.7
India . . .	3,839	3,677	3,356	104.4	114.4	10,237	9,408	9,005	18,280	16,800	16,080	108.8	113.7
Egypt . . .	9	6	4	143.4	209.9	62	45	33	110	81	58	136.1	190.0
Ital. East. Afr.:													
*Eritrea . . .	...	11 ¹⁾	6	...	...	...	11 ¹⁾ 41	26	...	11 ¹⁾ 73	46	...	...
Fr. Morocco . .	56	57	40	97.2	140.1	112	223	161	201	398	288	50.4	69.7
Total N. Afr. . .	65	63	44	103.8	150.0	174	268	194	311	479	346	64.8	89.8
Argentina . . .	12 ¹⁾ 6,608 ¹²⁾	7,023 ¹²⁾	7,274	94.1	90.8	34,172	33,938	38,077	61,021	60,604	67,994	100.7	89.7
Uruguay . . .	455	332	333	137.1	136.8	2,816	2,088	1,544	5,028	3,728	2,758	134.9	182.3
TOTALS . . .	12,798	13,002	13,328	98.4	96.0	55,221	53,079	56,459	98,608	94,783	100,820	104.0	97.8

† The years indicated are those of the harvest, single years referring to the Northern Hemisphere, double years to the Southern. — * Not included in the total. — ¹⁾ Not including Austria. — ²⁾ Including Austria. — ³⁾ Average 1933 to 1936. — ⁴⁾ Flax and hemp. — ⁵⁾ Average 1934 to 1936. — ⁶⁾ Dolgunetz variety. — ⁷⁾ Area according to the plan. — ⁸⁾ On September 1, the flax on 96 per cent. of the area provided for in the Plan had been pulled. — ⁹⁾ Dolgunetz and Kudriash varieties. — ¹⁰⁾ Average 1932 to 1935. — ¹¹⁾ Including Tigrai. — ¹²⁾ Area sown.

Current information on Cotton.

Argentina: The cotton crop was generally satisfactory in all parts in January. Flowering was almost general. Condition in the east of the Chaco was good and growth normal. In central and western parts of this territory a lack of moisture delayed growth. Elsewhere crop condition was average in January and rain was needed.

Antigua: It was reported in December that the cotton crop was promising, and prospects were about the same as last year's at the same time, that is to say about 2,000 centals of lint (418 bales of 478 lb.).

*United States:*Summary of Government Cotton Reports
by cotton season.

	Provisional estimates for dates indicated 1938-39	Final estimates		Percent. 1938-39	
		1937-38	Average 1932-33 to 1936-37	1937-38 = 100	Aver. = 100
Report referring to July 1:					
Area in cultivation (acres)	26,904,000	34,471,000	32,752,000	78.0	82.1
Report referring to August 1:					
Area left for harvest (acres) 1)	26,347,000	34,001,000	29,962,000	77.5	87.9
Crop condition (per cent. of normal) 78		81	69	—	—
Production 4)	11,988,000	18,945,000	11,745,000	63.3	102.1
Yield of lint per acre, in lb. 217.9		266.9	179.8	81.6	121.3
Cotton ginned to August 1 5)	157,865	142,983	95,516	110.4	165.3
Cotton ginned to August 16 5)	313,934	514,544	318,270	61.0	98.6
Report referring to September 1:					
Area left for harvest (acres) 6)	26,449,000	34,001,000	29,962,000	77.8	88.3
Crop condition (per cent. of normal) 65		75	59	—	—
Production 4)	11,825,000	18,945,000	11,745,000	62.4	100.7
Yield of lint per acre, in lb. 214.1		266.9	179.8	80.2	119.2
Cotton ginned to September 1 5)	1,335,893	1,874,320	1,234,694	71.3	108.2
Cotton ginned to September 16 5)	3,636,564	4,261,165	2,980,657	85.3	122.0
Report referring to October 1:					
Crop condition (per cent. of normal) 66		79	59	—	—
Production 4)	12,212,000	18,945,000	11,745,000	64.5	104.0
Yield of lint per acre, in lb. 221.1		266.9	179.8	82.8	123.0
Cotton ginned to October 1 5)	6,578,399	8,260,071	5,194,093	79.6	126.6
Cotton ginned to October 18 5)	8,930,810	11,066,210	7,564,193	80.7	118.1
Report referring to November 1:					
Production 4)	12,137,000	18,945,000	11,745,000	64.1	103.3
Yield of lint per acre, in lb. 219.7		266.9	179.8	82.3	122.2
Cotton ginned to November 1 5)	10,126,502	13,160,423	9,029,178	76.9	112.2
Cotton ginned to November 14 5)	10,749,913	14,947,111	9,924,039	71.9	108.3
Report referring to December 1:					
Area in cultivation on July 1 (acres)	26,144,000	34,471,000	32,752,000	75.8	79.8
Area left for harvest (acres) 7)	25,346,000	34,001,000	29,962,000	74.5	84.6
Production 4)	12,008,000	18,945,000	11,745,000	63.4	102.2
Yield of lint per acre, in lb. 226.8		266.9	179.8	85.0	126.2
Average gross weight of running bale, lb. 8)	514.2	519.0	509.9	99.1	100.8
Cotton ginned to December 1 5)	11,232,737	16,175,505	10,722,272	69.4	104.8
Cotton ginned to December 13 5)	11,413,837	16,803,013	11,012,934	67.9	103.6
Cotton ginned to January 16 5)	11,558,369	17,644,208	11,310,583	65.5	102.2

1) Area in cultivation on July 1 less the ten-year (1928-37) average abandonment 2.1 per cent. — 2) Area actually harvested. — 3) Ten-year (1927-36) average. — 4) In bales of 478 lb. net weight and exclusive of linters. — 5) In running bales, counting round bales as half bales and exclusive of linters. — 6) Total abandonment after July 1: 1.7 per cent. — 7) Abandonment: 3.1 per cent. — 8) Counting round bales as half bales and exclusive of linters.

Area and Production of Cotton.

COUNTRIES	AREA					PRODUCTION OF GINNED COTTON							
	1938-39	1937-38	Average 1932-33 to 1936-37	% 1938-39		1938- 1939	1937- 1938	Average 1932-33 to 1936-37	1938- 1939	1937- 1938	Average 1932-33 to 1936-37	% 1938-39	
				1937- 1938	Average age							1937- 1938	Average age
ooo acres					ooo centals			ooo bales of 478 lb.					
Bulgaria	143	125	57	115.1	250.7	167	197	98	35	41	21	85.0	169.7
Greece	187	181	95	103.1	195.7	322	368	189	67	77	39	87.6	170.9
Italy	91	54	10	167.5	902.6	209	93	19	44	20	4	224.4	1080.4
*Romania	12	4	3	296.6	452.4	...	11	3	...	2	1	...	...
*Yugoslavia . . . . .	...	7	3	...	...	...	15	4	...	3	1	...	...
*U. S. S. R.	5,108	5,163	5,017	98.9	101.8	...	18,078	10,948	..	3,782	2,290	...	...
United States 1)	25,346	34,001	29,962	74.5	84.6	57,398	90,557	56,139	12,008	18,945	11,745	63.4	102.2
*Br. West Indies . . . . .	...	22	14	...	...	...	25	15	...	5	3	...	...
*Mexico . . . . .	...	829	495	...	...	...	1,625	1,177	...	340	246	...	...
*Argentina	1,005	1,048	691	95.9	145.4	...	1,134	1,111	...	237	232	...	...
*Burma	549	501	454	109.7	120.9	...	605	382	...	127	80	...	...
*Cyprus . . . . .	...	12	9	...	...	...	17	9	...	4	2	...	...
Chosen	576	548	475	105.2	121.5	929	1,017	773	194	213	162	91.3	120.2
India 2)	23,483	25,324	23,912	92.7	98.2	19,524	22,728	21,216	4,085	4,755	4,438	85.9	92.0
*Iraq 3) . . . . .	...	25,583	23,920	...	...	...	22,652	21,116	...	4,739	4,418	...	...
*Iraq	79	65	26	121.5	301.0	...	81	13	...	17	3	...	...
Syria	92	86	51	106.4	178.2	192	123	76	40	26	16	155.9	251.9
Turkey	483	792	478	60.9	101.0	540	986	834	113	206	175	54.8	64.7
Egypt	1,852	2,053	1,664	90.2	111.3	7,280	10,904	7,672	1,523	2,281	1,605	66.8	94.9
*Kenya	—	—	—	—	—	...	74	47	...	15	10	...	...
*Nyasaland	—	—	54	...	...	...	50	40	...	8	8	125.0	130.5
Uganda	1,493	1,759	1,240	84.9	120.4	1,300	1,668	1,190	272	349	249	77.9	109.2
Anglo-Eg. Sudan	458	443	379	103.4	120.9	1,160	1,261	919	243	264	192	92.0	126.2
*Tanganyika 4)	—	—	—	—	—	188	258	158	39	54	33	73.0	119.6
TOTALS	54,204	65,366	58,323	82.9	92.9	89,021	129,902	89,125	18,624	27,177	18,646	68.5	99.9

* Countries not included in the totals.

1) See: *Summary of Government Cotton Reports*. — 2) Fourth report, referring to the entire cotton area of India. — 3) Final estimates. — 4) Exports.

India (Telegram of February 21): The following are the fourth estimates for the Punjab and Madras:—

	1938-39	1937-38	Average 1932-33 to 1936-37	% 1938-39 = 100	Average = 100
Punjab (ooo acres)	3,653	3,985	3,079	91.7	118.6
(ooo cent.)	4,968	5,264	4,486	94.4	110.7
(ooo bales of 478 lb.)	1,039	1,101	939		
Madras (ooo acres)	1,874	2,512	2,240	74.6	83.6
(ooo cent.)	1,503	1,954	1,915	76.9	78.5
(ooo bales of 478 lb.)	314	409	401		

Egypt: Preparation of land, particularly on large estates, was started during January. Weather conditions were favourable owing to absence of rain. Sowing was started only in some partial areas in the provinces of Girga, Qena and Aswan.

Cotton ginned up to the end of December, in bales of 478 lb. net weight, was as follows:

Varieties	1938	1937	1936	1935	1934	1933	1932
Giza 7	240,898	324,212	285,664	193,043	112,080	72,152	25,205
Sakellaridis	—	65,381	80,009	129,395	117,929	142,484	158,826
Other varieties above:							
1 ³ / ₈ '' 1)	92,156	74,049	65,499	68,270	36,176	67,934	50,678
1 ¹ / ₂ ''	28,644	21,955	20,787	31,632	28,591	52,854	52,883
1 ¹ / ₈ ''	687,341	848,112	926,555	872,030	732,788	807,968	400,124
Total . . .	1,049,039	1,333,709	1,378,514	1,294,370	1,027,564	1,143,392	687,716
Scario	19,633	22,365	28,243	27,194	20,894	22,830	15,991
Total production (including Scario) *	1,523,000	2,281,223	1,887,164	1,768,581	1,565,583	1,776,908	1,026,977

* Second estimate. — 1) Including Sakellaridis.

Cotton ginned up to the end of January, in bales of 478 lb. net weight, was as follows:

Varieties	1939	1938	1937	1936	1935	1934	1933
Giza 7	290,784	385,803	344,273	222,257	142,982	84,294	28,648
Sakellaridis	—	72,200	92,626	151,949	145,590	186,801	189,295
Other varieties above:							
1 ³ / ₈ '' 1)	113,401	82,731	80,321	80,387	43,521	82,641	58,809
1 ¹ / ₂ ''	35,058	24,375	25,452	37,422	33,261	63,013	59,785
1 ¹ / ₈ ''	780,158	966,895	1,069,799	953,237	835,848	912,959	458,059
Total . . .	1,219,401	1,532,004	1,612,471	1,445,452	1,201,202	1,329,708	794,596
Scario	23,336	26,556	34,544	31,402	24,669	26,962	18,491
Total production (including Scario) *	1,523,000	2,281,223	1,887,164	1,768,581	1,565,583	1,776,908	1,026,977

* Second estimate. — 1) Including Sakellaridis.

Kenya: It was reported in December that drought conditions had had an adverse effect on the Kisumu cotton crop.

Tanganyika: During December beneficial wet weather prevailed in all districts. The rains were particularly favourable for the cotton crop in the Mwanza area, where the production was expected to be exceptionally large this year.

Current information on Hemp.

Argentina: Hemp yields were average this year.

Area and Production of Hemp.

COUNTRIES	AREA					PRODUCTION				
	1938	1937	Average 1932 to 1936	% 1938		1938	1937	Average 1932 to 1936	% 1938	
				1937	Aver- age				1937	Aver- age
ooo acres			ooo pounds							
<i>Fibre.</i>										
Germany 1) . . .	31	19	5	168.0	620.1	25,953	15,313	2) 9,083	169.5	285.7
Bulgaria	23	20	14	113.7	164.1	8,404	8,448	5,814	99.5	144.5
France	9	9	7	98.3	126.5	11,162	9,776	7,040	114.2	158.6
Italy	225	214	156	104.9	143.6	239,487	239,196	144,722	100.1	165.5
Poland	83	85	81	97.4	101.7	...	25,397	24,352	...	...
Romania	126	126	118	100.2	107.0	...	59,525	56,670	...	...
Czecho-Slovakia . . .	18	18	19	101.1	96.9	...	10,694	12,709	...	...
Yugoslavia . . . . .	...	139	95	...	...	...	110,048	77,705	..	...
U.S.S.R. 3)	1,413	1,511	1,740	93.5	81.2	—	—	—	—	—
Syria & Lebanon . . .	...	16	6	..	...	...	10,507	3,482	..	...
<i>Hempseed.</i>										
Germany 1) . . .	31	19	5	168.0	620.1	17,417	11,089	2) 5,956	157.1	292.4
Bulgaria	23	20	14	113.7	164.1	5,196	9,714	4,297	53.5	120.9
France	9	9	7	98.3	126.5	...	...	1,894	...	...
Italy	—	—	—	—	—	6,221	6,054	5,455	102.8	114.0
Poland	83	85	81	97.4	101.7	...	41,350	38,168	...	...
Romania	126	126	118	100.2	107.0	...	51,588	44,033
Czecho-Slovakia . . .	18	18	19	101.1	96.9	...	7,477	8,374
Yugoslavia	—	—	—	—	—	...	9,901	3,858	...	...
Manchukuo . . . . .	...	150 2)	152	...	...	70,420	79,755 2)	88,783	88.3	79.3

1) Not including Austria. — 2) Average 1935 and 1936. — 3) Area forecast by the Plan.

General review of the Statistical Situation of Hops in 1938.

With the official estimates and other information now available, it is possible to make the following summary of the results of the 1938 hop season.

The total cultivated hop area was smaller than that of 1937. Taking the four principal producing countries which together cultivate four-fifths of the world hop area, the United States and Germany report decreases from 1937 of 8.2 per cent. and 7.8 per cent. respectively. There was a slight increase, however, in England and Wales and Czecho-Slovakia. The combined area of the four countries in 1938, now estimated at approximately 101,000 acres, is the lowest of the last five years but it was appreciably larger than the area of the years 1931 to 1933 which were a period of crisis in the hop industry.

The total area of the other hop-growing countries in 1938 appears to have been slightly smaller than it was in the preceding year. The four countries which have issued estimates up to the present all report decreases. The largest decrease was in Belgium with 13.0 per cent., which was followed by Poland with 6.6 per cent., by Yugoslavia with 2.7 per cent. and by France with 1.1 per cent.

Area cultivated to Hops.

(in acres)

COUNTRIES	1938	1937	1936	1935	1934	1933	1932	Average 1927 to 1931
<i>Principal producing countries:</i>								
United States	31,501	34,301	30,901	38,900	36,802	30,301	22,000	23,221
England and Wales . .	18,491	18,093	18,318	18,251	18,036	16,895	16,532	22,064
Czecho-Slovakia 1) . .	28,709	28,541	28,081	27,797	27,056	25,371	23,631	36,147
Germany 2)	22,240	22,858	25,482	25,378	23,984	23,777	19,917	34,771
<i>Total . . .</i>	<i>100,941</i>	<i>103,792</i>	<i>102,782</i>	<i>110,326</i>	<i>105,878</i>	<i>96,344</i>	<i>82,080</i>	<i>116,203</i>
	80.3 %	80.2 %	80.3 %	81.9 %	82.2 %	84.1 %	83.2 %	75.8 %
<i>Other producing countries:</i>								
France	4,250	4,300	4,680	4,826	4,762	4,221	4,361	9,595
Yugoslavia	6,954	7,144	6,689	6,501	5,896	4,186	3,613	13,860
Poland	8,204	8,787	8,318	7,685	7,038	5,424	4,875	3) 6,850
Belgium	1,836	2,110	2,412	2,298	2,170	1,475	1,416	3,030
Canada . . . . .	...	988	1,063	1,122	1,156	983	689	1,026
Hungary and Romania .	...	247	301	361	306	316	314	736
Australia and New Zealand . . . . .	...	1,977	1,769	1,666	1,569	1,547	1,307	1,920
<i>Total . . .</i>	<i>* 25,000</i>	<i>25,553</i>	<i>25,232</i>	<i>24,459</i>	<i>22,897</i>	<i>18,152</i>	<i>16,575</i>	<i>37,017</i>
	19.7 %	19.8 %	19.7 %	18.1 %	17.8 %	15.9 %	16.8 %	24.2 %
WORLD TOTAL . . .	* 125,940	129,345	128,014	134,785	128,775	114,496	98,655	153,220
	100 %	100 %	100 %	100 %	100 %	100 %	100 %	100 %

* Estimate. — 1) Former territory. — 2) Including Austria. — 3) Average of three years.

The other countries of this group have not issued estimates of acreage but their total area was probably little different from what it was in the preceding year. Hence, the total area cultivated in 1938 in these countries may be estimated at 25,000 acres. The total world hop area in 1938 would thus reach 126,000 acres. Compared with the areas recorded in 1937, 1936, 1935 and 1934, the decrease was 2.9, 1.8, 6.8, and 2.4 per cent. respectively while, compared with the average of the years 1927 to 1931, the decrease was 18 per cent.

Reports on hop growing in the various countries in 1938 may be summarized as follows:—

In the *United States*, the crop suffered from heat and had to withstand a drought which lasted from the beginning of the summer. Production prospects as indicated in August improved later in Washington but worsened in September in Oregon and California. In Oregon growth was impeded by hot and dry weather. In California, yields on the coast were appreciably lighter than first expected owing to drying. In parts of Oregon and Washington the crop was left impicked. Production in 1938 is estimated to have been 29 million lb., or only 80 per cent. of the 1937 crop (44 million lb.). Moreover, 3,140,000 lb. of this total were not harvested. The yield was 1,119 lb. per acre compared with a ten-year average of 1,195 lb.

In *England and Wales*, the year was very favourable to hops on the whole, the weather of the summer being alternatively wet and sunny. Production was heavy and the unit yield high.

In the former territory of *Czecho-Slovakia* the growth of hops was uneven in July. The crop was attacked by mildew and flies. In September a poor crop was forecast owing to frequent rain and continuous winds. As to quality, forecasts were very satisfactory.

The Statistical Office of *Czecho-Slovakia*, in its *Bulletin Statistique* No. 11-12 (November-December, 1938), published some interesting information on the hop crops after the cession of the Sudeten territory. *Czecho-Slovakia* has lost 63 per cent. of its hop area and 61.6 per cent. of its hop production. The statistics for 1937 have been calculated on this basis. The cultivated area was 28,500 acres and production amounted to 26,819,000 lb. After allowing for the losses caused by the political changes, the area in 1937 becomes 10,550 acres and production 10,287,000 lb. a loss of 17,950 acres and 16,532,000 lb. The 1938 area for the former territory of *Czecho-Slovakia* is 28,700 acres. No official estimate of production is available yet but the outturn may be put roughly at 23,100,000 lb. of which about 9,920,000 was obtained from areas within the present frontiers.

In *Germany*, the year 1938 was exceptionally favourable for hops. *Pero-nospora* was almost negligible. According to official estimates, the area under hops in the Reich (including Austria but excluding the Sudeten territory) was about 22,200 acres. No official estimate of production has yet been issued but the crop is estimated to be larger than that of 1937.

In *France*, the weather in August was decidedly unfavourable. A severe attack of mildew at the end of the month caused a deterioration in the quality, which up to that time had been good. Picking took place in September. The quality of the crop was moderately good, that of early varieties being excellent but that of late varieties not satisfactory.

In *Yugoslavia* the month of July and the first ten days of August were not favourable for the growth of hops, for excessive humidity and cold nights caused premature withering of the blossom and were responsible for a spread of mildew.

Yield in pounds per acre.

COUNTRIES	1938	1937	1936	1935	1934	1933	1932	Average 1927-31
United States	1,119	1,280	814	1,227	1,194	1,319	1,093	1,263
England and Wales	1,557	1,454	1,541	1,522	1,608	1,432	1,274	1,297
Czecho-Slovakia (old territory) . . . . .	...	940	948	604	576	545	702	722
Germany (including Austria) . . . . .	...	993	876	751	608	636	550	589

Present official crop estimates are still too incomplete to enable a precise estimate of world hop production in 1938 to be made. An approximate estimate must therefore be made, based, in the case of those countries which have not yet published official estimates, on the probable production, taking into

consideration the area under cultivation and reports on conditions during the growing season.

For Germany an estimate of 23,800,000 lb. has been adopted and for Czecho-Slovakia (former frontiers) 23,100,000 lb.

World production in 1938 totals approximately 132,300,000 lb. The estimate is of course only provisional and is more likely to be reduced than raised.

Production of Hops.

(000 lb.)

COUNTRIES	1938	1937	1936	1935	1934	1933	1932	Average 1927 to 1931
<i>Principal producing countries:</i>								
United States	35,261	43,912	25,157	47,746	43,952	39,966	24,057	29,330
England and Wales . .	28,784	26,319	28,224	27,776	29,009	24,191	21,056	28,627
Czecho-Slovakia 1) . *	23,100	26,819	26,634	16,797	15,596	13,819	16,583	26,083
Germany 2) *	23,800	22,708	22,331	19,057	14,575	15,126	10,964	20,466
<i>Total . . . *</i>	<i>111,100</i>	<i>119,758</i>	<i>102,346</i>	<i>111,376</i>	<i>103,132</i>	<i>93,102</i>	<i>72,660</i>	<i>104,506</i>
	84.0 %	85.0 %	83.3 %	84.0 %	83.7 %	85.8 %	85.5 %	78.5 %
<i>Other producing countries:</i>								
France	4,495	5,184	3,684	5,097	6,030	3,179	1,711	8,342
Yugoslavia	3,527	4,700	4,325	4,169	3,159	3,228	1,819	7,460
Poland	5,037	3,327	4,268	3,732	3,172	2,542	3,437	3,812
Belgium	2,105	2,663	3,172	2,535	2,824	1,581	1,532	3,816
Canada . . . . .	...	1,543	1,603	1,766	1,407	1,477	791	1,248
Hungary and Romania	...	379	223	207	146	152	174	353
Australia and New Zealand . . . . .	...	3,307	3,307	3,748	3,307	3,307	2,866	3,527
<i>Total . . . *</i>	<i>21,200</i>	<i>21,103</i>	<i>20,582</i>	<i>21,254</i>	<i>20,045</i>	<i>15,466</i>	<i>12,330</i>	<i>28,558</i>
	16.0 %	15.0 %	16.7 %	16.0 %	16.3 %	14.2 %	14.5 %	21.5 %
WORLD TOTAL . . . *	132,300	140,861	122,928	132,630	123,177	108,568	84,990	133,064
	100 %	100 %	100 %	100 %	100 %	100 %	100 %	100 %

* Estimate. — 1) Old territory. — 2) Including Austria. — 3) Average of three years.

From this estimate, production in 1938 seems less satisfactory than in 1937, when the world total showed a considerable increase, being higher than for a number of years. The fall in production between 1937 and 1938 represents 6.1 per cent.

The principal cause of the decline is almost solely the poor crop this year in the United States, where production fell from 44 million lb. in 1937 to 35 million lb. in 1938, a decrease of 20 per cent.

Briefly, world hop production in 1938, in spite of this decrease, may be considered large, being about 15 per cent. above the average of 1932-1936.

In regard to the world trade in hops, in the following two tables we publish the latest trade statistics of the principal exporting and importing countries. For several countries the 1938 figures are not complete.

World Exports of Hops.

YEARS	Czecho-Slovakia		Germany		Yugoslavia		United States		Poland		Total		Total world exports	
	ooo lb.	%	ooo lb.	%	ooo lb.	%	ooo lb.	%	ooo lb.	%	ooo lb.	%	ooo lb.	%
1938	¹⁾ 5,902	—	7,322	—	²⁾ 1,470	—	3,763	—	³⁾ 4,511	—	...	...	...	...
1937	20,867	41.2	7,546	14.9	5,315	10.5	5,666	11.2	4,407	8.7	43,801	86.6	* 50,486	100
1936	18,010	35.9	8,918	17.8	7,910	15.8	3,424	6.8	5,732	11.4	43,994	87.7	50,162	100
1935	10,842	25.9	6,841	16.4	7,901	18.9	6,221	14.9	3,710	8.9	35,515	85.0	41,769	100
1934	14,222	33.2	6,909	16.1	4,429	10.3	6,003	14.0	4,296	9.9	35,809	83.5	42,878	100
1933	10,975	29.7	7,480	20.2	3,104	8.4	6,726	18.2	2,641	7.1	30,926	83.6	36,967	100
1932	13,195	42.4	4,658	15.0	3,644	11.7	3,007	9.6	4,131	13.3	38,635	92.2	31,140	100
Average 1932-1936 .	13,448	33.1	6,962	17.2	5,397	13.3	5,007	12.5	4,092	10.1	34,976	86.2	40,583	100
Average 1927-1931 .	18,852	34.3	5,492	10.0	8,534	15.6	8,243	15.0	4,281	7.8	45,402	82.7	54,871	100

* Estimate. — 1) 8 months. — 2) 6 months. — 3) 11 months.

World exports of hops in 1937 were very high (50,500,000 lb.), which is a slightly higher figure than that of 1936 and 20 per cent. above the average of 1932 to 1936 (40,583,000 lb.), but 8 per cent. less than the average of 1927 to 1931 (54,871,000 lb.).

From 30 to 40 per cent. of this total came from Czecho-Slovakia, Germany being next in order with 10 to 13 per cent., then the United States with 11 to 12 per cent., and Poland with 8 to 10 per cent. These five countries contribute more than 85 per cent. of the world exports of hops.

The principal importing countries are, in order of importance, the United States, the United Kingdom, Belgium, Ireland, France and a group of five

World Imports of Hops.

YEARS	United States		United Kingdom		Belgium		Ireland		France		Other importing countries 1)		Total		World total imports	
	ooo lb.	%	ooo lb.	%	ooo lb.	%	ooo lb.	%	ooo lb.	%	ooo lb.	%	ooo lb.	%	ooo lb.	%
1938	²⁾ 8,360	—	5,518	—	²⁾ 4,061	—	²⁾ 3,964	—	²⁾ 529	—	²⁾ 3,406	—	...	...	...	...
1937	10,020	20.8	5,221	10.9	5,247	10.9	4,348	9.0	2,553	5.3	5,571	11.6	32,960	68.5	* 48,100	100
1936	8,942	18.3	4,566	9.4	5,814	11.9	5,635	11.5	2,804	5.7	5,247	10.7	33,008	67.5	48,852	100
1935	5,273	12.7	4,658	11.2	4,500	10.9	4,652	11.2	2,491	6.0	5,564	13.4	27,138	65.4	41,451	100
1934	6,120	14.7	5,051	12.1	5,454	13.1	4,403	10.6	2,952	7.1	5,073	12.2	29,053	69.8	41,712	100
1933	5,937	16.2	5,331	14.5	3,951	10.8	4,120	11.2	3,499	9.5	3,153	8.6	25,991	70.8	36,694	100
1932	1,301	4.3	1,984	6.5	5,016	16.5	4,557	15.0	3,541	11.6	4,985	16.4	21,384	70.3	30,466	100
Average: 1932-1936 . .	5,515	13.8	4,318	10.8	4,947	12.4	4,673	11.7	3,057	7.7	4,804	12.1	27,314	68.5	39,835	100
Average: 1927-1931 . .	816	1.5	7,901	14.6	6,689	12.3	5,814	10.7	5,093	9.4	9,145	16.8	35,458	65.3	54,287	100

*) Estimation. — 1) Austria, Netherlands, Sweden, Switzerland and Canada. — 2) 11 months.

countries (Austria, Netherlands, Sweden, Switzerland and Canada), which are large beer-consuming countries. The total imports of this group amount to more than two-thirds of the total.

This table of import statistics shows a clear tendency to a reduction of hops imports into France, caused by the steady increase of internal production. A similar decline took place in United Kingdom imports from 1934 to 1936, but in the last two years a marked increase took place as a result of increased internal consumption. Imports into the other importing countries have remained fairly stable.

The large crop of hops in 1937 was responsible for a fall in prices on all the principal markets of the producing countries in the first eight months of 1938. In September, when the first forecasts of a smaller crop were published and when the new crop was marketed prices rose considerably.

The following table shows the monthly movement of prices on the most important markets.

Price of Hops.

(Gold francs per 100 kilograms)

MONTHS	ZATEC			NÜRNBERG			NEW YORK					
	Zatecky			Hallertauer, prima			Pacific Coast (medium to prime)			Imported (medium to prime)		
	1938	1937	1936	1938	1937	1936	1938	1937	1936	1938	1937	1936
January	153.19	211.24	371.98	523.64	592.80	568.67	126.53	325.61	91.04	364.41	489.26	463.65
February	158.55	216.61	375.18	523.64	617.50	603.51	141.72	330.67	90.12	364.41	489.26	450.61
March	153.19	211.24	339.35	523.64	592.80	566.56	133.28	320.55	90.63	364.41	489.26	444.74
April	151.76	200.49	326.17	523.64	531.05	568.12	133.28	301.99	91.37	359.35	484.20	439.93
May	209.27	191.89	326.30	523.64	555.75	572.58	131.59	276.68	91.91	361.04	475.76	442.51
June	184.78	159.10	317.08	506.35	531.05	572.12	118.10	232.82	111.45	361.04	442.02	442.51
July	173.15	147.81	274.69	506.35	531.05	568.10	117.22	202.45	225.70	361.04	394.78	471.62
August	145.34	131.69	219.70	494.00	526.11	543.40	112.16	140.03	243.42	361.04	354.29	473.31
September	215.63	213.92	245.54	577.98	605.15	605.15	175.46	145.09	343.15	398.16	354.29	473.31
October . . . . .	...	186.51	172.16	555.75	592.80	686.58	188.95	153.53	361.04	393.90	398.16	482.51
November . . . . .	...	197.26	218.12	605.15	563.16	664.78	188.95	136.65	357.66	398.16	398.16	489.26
December . . . . .	...	153.19	211.55	580.45	538.46	652.69	188.95	121.47	347.54	420.90	364.41	489.26
Annual averages . .	...	185.08	283.15	537.02	564.81	597.69	146.35	223.96	203.75	375.65	427.82	463.60

r) New crops.

Beer production and consumption in 1938 remained very large and increased still further on the preceding year in the large producing countries.

E. ARNOLD FERIDY

Current information on Tobacco.

Greece: In pursuance of the new law on tobacco crop regulation which replaces that in force last year, the Ministry of Agriculture has issued its first order providing for an increase of about 25,000 acres over last year in the tobacco area. This increase is authorized mainly in districts producing varieties and qualities in increasing demand on foreign markets. The largest increase is authorized in eastern Macedonia, Thrace, Samos and Lesbos.

Cyprus: A report for December, 1938 states that preparations are being made to plant a larger area under tobacco in 1939. Seed-beds in all the tobacco-growing areas had been prepared and sown before the end of 1938. The weather in December was wet and fields were able to store sufficient moisture, so that prospects for the new crop are good.

Indochina: The transplantation of the young plants of this season was in progress in Annam, Cambodia and Cochinchina in December. The seed-beds had a good appearance and a tendency to increase the area under cultivation is already noticeable.

Nyasaland: It was reported in December that planting of tobacco in the Southern Province had been completed.

Area and Production of Tobacco.

COUNTRIES	AREA					PRODUCTION				
	1938 and 1938-39	1937 and 1937-38	Average 1932 to 1936 and 1936-37	% 1938 and 1938-39		1938 and 1938-39	1937 and 1937-38	Average 1932 to 1936 and 1936-37	% 1938 and 1938-39	
				1937 and 1937- 1938 = 100	Aver- age = 100				1937 and 1937- 1938 = 100	Aver- age = 100
ooo acres					ooo pounds					
Albania . . . . .	...	5	4	...	...	...	3,307	3,076	...	...
Germany 1)	33	32	30	102.9	109.8	a) 73,855	68,343	70,292	108.1	105.1
Belgium	5	6	7	84.7	74.3	10,529	12,630	14,894	83.4	70.7
Bulgaria	89	96	73	92.7	122.1	37,817	69,055	58,528	54.8	64.6
France . . . . .	...	45	44	...	...	...	68,770	76,333	...	...
Greece	202	226	200	89.4	101.0	84,943	141,441	111,530	60.1	76.2
Hungary	33	36	44	93.0	75.5	43,854	45,008	55,459	97.4	79.1
Italy	81	79	87	102.6	93.5	90,961	94,631	98,897	96.1	92.0
Poland . . . . .	...	17	13	...	...	...	30,035	19,595	...	...
Romania	43	35	33	120.6	129.2	...	22,708	20,886	...	...
Switzerland . . . . .	...	1	1	...	...	...	2,379	2,149	...	...
Czecho-Slovakia	23	24	24	96.6	95.0	...	30,944	31,407	...	...
Yugoslavia . . . . .	...	51	35	...	...	...	45,818	25,394	...	...
U. S. S. R.	3) 504	3) 503	511	100.1	98.6	...	...	4) 413,649	...	...
Canada	83	69	49	120.8	171.1	85,142	71,459	47,643	119.1	178.7
Cuba	112	122	106	91.8	105.4	55,321	55,398	40,593	99.9	136.3
United States	1,627	1,735	1,459	93.8	111.5	1,455,970	1,552,601	1,184,512	93.8	122.9
Mexico . . . . .	...	...	35	...	...	20,283	25,353	26,230	80.0	77.3
Burma	96	99	97	96.8	99.1	...	98,560	95,872	...	...
Chosen	48	45	37	105.5	129.0	57,869	58,398	41,894	99.1	138.1
India . . . . .	...	1,214	1,208	...	...	...	1,120,000	1,308,608	...	...
Iran . . . . .	...	25	28	...	...	...	35,128	36,721	...	...
Japan	92	85	85	107.2	107.9	144,602	142,375	142,342	101.6	101.6
Palestine . . . . .	...	14	5	...	...	...	5,227	1,869	...	...
Syria and Lebanon . . . . .	...	15	14	...	...	...	11,418	7,253	...	...
Transjordan . . . . .	...	2	—	—	—	...	1,218	649	...	...
Turkey . . . . .	...	233	132	...	...	134,908	140,886	87,801	95.8	153.6
Algeria	58	59	54	98.9	107.2	42,008	38,877	39,737	108.1	105.7
Argentina	45	29	38	155.7	118.7	...	17,224	32,858	...	...
Nyasaland 5) . . . . .	...	42	40	...	...	...	17,450	15,235	...	...
Australia . . . . .	...	12	15	...	...	...	6,500	5,588	...	...
New Zealand . . . . .	...	3	2	...	...	...	2,250	1,392	...	...

1) Production for sale. — 2) Data published by the Reichsnährstand. — 3) Area provided for in the Plan. — 4) Average 1932, 1933, 1934 and 1936. — 5) European and native crops.

Southern Rhodesia: According to the December report on agricultural conditions in Southern Rhodesia, the majority of growers had planted practically all their intended acreage of flue-cured tobacco by the end of the year. Given favourable conditions, the remainder of the crop should have been planted by the middle of January. The condition of the crop according to the report was, in general, good. The continuous dull weather and excessive rainfall during the latter half of December appeared, however, to have somewhat retarded growth and caused a gradually increasing incidence of disease.

Northern Rhodesia: According to a report dated January 10, the tobacco growing season has started well in the Fort Jameson area, with adequate sub-soil moisture. The number of registered growers has increased and a slightly larger crop than last season's is expected.

Current information on Other Products.

Cacao.

Grenada: It was reported in December that some cacao estates had started picking, but the wet weather had retarded the drying process.

Netherlands Guiana: Despite neglect, the condition of the cacao plantations, which, however, are not extensive, was not unfavourable.

Trinidad: It was reported in December that prospects for the cacao crop were unfavourable and a small crop was expected.

Gold Coast and Togoland under British Mandate: MAIN CROP 1938-39. — The rainfall and number of wet days during December were considerably above average, but the number of hours of sunshine per day was high, and conditions for harvesting and drying were therefore mainly favourable. An increase in the number of germinated beans was reported from up-country, but analysis of 600 samples taken from farmers' stocks throughout the cacao area during December showed that the parity level was high. The average percentages of defects found were as follows: mould 1.5 per cent., germinated 2.4 per cent, slate 3.2 per cent, weevil 0.5 per cent, defective 1.4 per cent. The mean purity of the beans was 91.7 per cent. About 148 million lb. of cacao were graded by Licensed graders and Inspectors, and 81 million lb. check sampled by the Inspectors at the ports prior to export. A summary of the grade percentages is given in the following table:

Grade per cent. during December 1938:

Grade	Farmers' Cacao (600 lots)	Original sampling (148 million lb.)	Check sampling at ports (81 million lb.)
I	58.0	56.0	57.0
II	34.5	43.7	36.4
III	6.0	0.3	6.0
Sub-grade	1.5	—	0.6
	100.0	100.0	100.0

The average number of beans in the standard 14 cubic inches space bean count for all ports during December was 125.2.

The farms were reported to present a comparatively bare appearance. Except for the few ripe pods ready for harvest, there was little crop to be seen, and flowering for the mid-crop had not yet become general. The tonnage marketed during December was 165.8 million lb. bringing the total for the season to 299.0 million lb. distributed as follows: marketed in September 4.5, in October 31.3, in November 97.4, in December 165.8. This total of 299 million lb., which represents about 53 per cent. of the estimated crop of 560 million lb., is considerably lower than the three-year mean for 1934-35, 1935-36 and 1936-37 which was 70 per cent. The 1937-38 season is excluded from the calculation on account of the abnormal marketing conditions.

The exports for December were about 92 million lb. bringing the total for the three months to 145 million lb., which includes 29 million lb. of old crop carried over on October 1, 1938, and 2 million lb. of old crop marketed after that date. The net export of this season's crop is therefore 114 million lb.

The movement to the ports, stocks at up-country centres and ports, and exports are summarized in the table below:

	Oct.	Nov. (million lb.)	Dec.	Total
Stocks at end of months:				
up-country	16	34	69	—
ports	34	76	114	—
<i>Total</i>	50	110	183	—
Entry to ports	25	78	130	233
Total exports (including Frontier) . .	18	35	92	145
less carry-over	—	—	—	31
exports new crop	—	—	—	114

The situation of the crop at end of December was as follows:

	(million lb.)	% of the estimated total crop
Exports to end December 1938 (excluding 31 million lb. of old crops)	114	20
Stocks in merchants' hands	185	33
<i>Total marketed</i>	299	53
Stocks in farmers' hands	145	26
<i>Total harvested</i>	444	79
Ripe in the farms (est.)	49	9
Ripe up to end of January (est.)	56	10
Ripe after (est.)	11	2
<i>Total crop (estim.)</i>	560	100

MOVEMENT. — Movement statistics for December are as follows:

	December 1938 (million lb.)	December 1937
Railway off-loadings, Takoradi	45.2	3.9
Exports:—		
Takoradi	28.4	13.3
Accra	46.7	9.0
Other ports	14.8	3.7
<i>All ports</i>	89.9	26.0
Eastern Frontier	2.2	0.0
<i>Total exports</i>	92.1	26.0

Tea.

Indochina: The growth of tea-plants was normal in December.

Coffee.

Brazil: The total amount of coffee destroyed from 1931 through January 1939 amounted to 86,036,000 centals, of which 3,924,000 were eliminated in the first six months of the present commercial season (July 1-December 31 1938) and 410,000 during January. Stocks in Brazilian ports on January 31, 1939 amounted to 4,726,000 centals, of which 3,267,000 was in Santos.

Netherlands Guiana: Under the influence of favourable, weather coffee shrubs made satisfactory growth and maturation took place normally.

Dominican Republic: According to January reports, weather conditions during December were favourable to the coffee crop. High yields are expected in the crop year 1938-39.

Kenya: According to the most recent estimate, the total area cultivated to coffee in 1938-39 is about 89,800 acres against 93,800 in 1937-38 and 101,600 on the average of the four years ending 1935-36; percentages, 95.8 and 88.3. The corresponding production is estimated at about 355,000 centals of clean coffee against 345,000 in 1937-38 and 332,000 on the average 1932-33 to 1936-37; percentages, 102.8 and 106.8. It was reported in December that the main coffee crop had proved somewhat disappointing as regards quality, owing to the very dry conditions which prevailed in September and October last.

Madagascar: The dry weather of December was favourable for the blossoming of coffee shrubs, the crop condition of which on January 1 was good.

Sierra Leone: December was favourable for coffee picking. Yields were average.

Tanganyika: It was reported in December from the coffee districts that picking had already finished and that planters were engaged in preparing for next season's crop which, given favourable conditions over the course of the next month or two, should prove to be a good one.

New Caledonia: Except in the south, the coffee plantations were in excellent condition in December. Prospects for the Robusta variety are very good.

New Hebrides: A plentiful crop is expected this year.

Groundnuts.

Argentina: The weather of December was not favourable for groundnuts. Crop prospects in January were poor to average.

Netherlands Indies: Java and Madura. — The Department of Agricultural Statistics of the Central Statistical Office communicates the following details of the groundnut area:—

	1938 acres	1937 acres
Area harvested in December	52,600	44,000
Area harvested from January 1 to December 31.	646,700	580,200
Area of standing crops at the end of December.	159,100	166,600

Indochina: The growth of groundnuts in Annam in December was good. The new sowing was carried out in Cambodia.

Colza and Sesame.

Bulgaria: The area under colza in 1938-39 is estimated at 51,100 acres against 50,900 acres in 1937-38 and an average of 22,000 acres in 1932-33 to 1936-37; percentages, 100.4 and 231.9.

Hungary: On February 7 it was reported that winter colza had suffered somewhat from frost.

India: Toward the end of the second decade of January the condition of the colza, rapeseed and mustard crops was reported to be fair.

Condition of sesame was reported to be on the whole fair toward the end of the second decade of January.

Current information on Fodder Crops.

Germany (former frontiers): The production of certain fodder crops in 1938 and preceding years was as follows:

	1938	1937	Average 1932-36	1938	1937	Average 1932-36	% 1938	
							= 100	= 100
	ooo centals			ooo short tons				
Mangels	847,460	893,707	756,387	42,372	44,685	37,819	94.8	112.0
Turnips and swedes	162,962	210,827	193,912	8,148	10,541	9,695	77.3	84.0
Fodder carrots . .	9,619	9,824	9,741	481	491	487	97.9	98.7

Estonia: In January feeding conditions were satisfactory. Ample supplies of fodder were available owing to last year's abundant cereal harvest.

France: At the end of January, meadows and pastures were in satisfactory condition, despite delay caused by the bad weather of the second half of January in seasonal work and manuring. The first half of February was more favourable in this respect and work went forward satisfactorily. Annual fodders, particularly cabbage, were severely tried by the cold. Mangels in silos or stores were severely affected by frosts on December 19 and 20. Excessive moisture in January made lifting of Jerusalem artichokes difficult and there was a risk of rotting occurring in tubers in the ground but the later cold and dry weather changed the situation in this respect. As a result of the decrease in supplies of fodder tubers, of the damage suffered by winter annual fodders and of the delay in growth of grass, some farmers may have a difficult feed problem, especially at the beginning of the green feed period.

Hungary: On February 7 it was anticipated that feed supplies would suffice for the winter.

Ireland: January was almost continuously wet. Feed supplies were adequate for normal requirements.

Italy: In the first half of January frost did some slight damage to fodder crops in the most exposed areas. In Southern and Insular Italy growth was fairly good. In the second half condition greatly improved as a result of rain.

Final estimates of the fodder area and production of 1938, compared with those of 1937 and 1936 are shown below:—

Area (000 acres).

	1938	1937	1936
Rotation meadows (two years old and over) . .	5,123	— 5,043	4,945
Rotation meadows (1st year)	2,018	2,055	1,962
Annual fodder crops:			
grown alone	736	726	707
catch crops	1,374	1,231	1,215
Permanent meadows:			
irrigated	744	744	749
unirrigated	1,783	1,799	1,813
Permanent meadows-pastures	847	848	843
Permanent pastures	10,739	10,766	10,779

Production in thousand centals (expressed in ordinary hay).

Rotation meadows (two years old and over) . .	250,782	296,933	275,020
Rotation meadows (1st year)	29,995	36,658	29,989
Annual fodder crops:			
grown alone	21,726	24,461	22,398
catch crops	41,660	39,081	34,695
Permanent meadows:			
irrigated	48,611	56,843	53,250
unirrigated	50,139	60,902	56,182
Permanent meadows-pastures	11,278	13,202	12,290
Permanent pastures	51,079	56,272	58,851
Other fodder production	135,250	137,270	126,939
<i>Total of fodder production . . .</i>	<i>640,520</i>	<i>721,622</i>	<i>669,614</i>

Production in thousand short tons (expressed in ordinary hay).

Rotation meadows (two years old and over) . .	12,539	14,846	13,751
Rotation meadows (1st year)	1,500	1,833	1,500
Annual fodder crops:			
grown alone	1,086	1,223	1,120
catch crops	2,083	1,954	1,735
Permanent meadows:			
irrigated	2,430	2,842	2,662
unirrigated	2,507	3,045	2,809
Permanent meadows-pastures	564	660	614
Permanent pastures	2,554	2,814	2,942
Other fodder production	6,762	6,863	6,347
<i>Total of fodder production . . .</i>	<i>32,025</i>	<i>36,080</i>	<i>33,480</i>

Latvia: In January supplies of fodder and concentrated feed for stock were sufficient and of satisfactory quality.

United Kingdom: January was stormy and exceptionally wet, with widespread snowstorms in the Midlands and the north and west of England and Scotland. The heavy rain caused extensive flooding, especially in the Eastern counties and the Thames Valley. There were some severe frosts. Pastures were very bare in Scotland as a result of flooding and frost. Winter keep was drawn on fairly heavily but should suffice if the spring is normal.

Argentina: The condition of pastures improved in January following rain.

Canada: The final estimates of the area and production of the principal fodder crops in 1938 are given below together with the figures for 1937 and the averages of the five years 1932 to 1936.

<i>Area.</i>					
(ooo acres)					
	1938	1937	Average 1932-1936	% 1938	
				1937 = 100	Average = 100
Hay and clover.	8,820	8,693	8,810	101.5	100.0
Alfalfa	859	849	737	101.2	116.6
Grain hay	949	1,148	1,449	82.7	65.5
Fodder maize	460	447	425	102.9	108.3
Turnips, etc.	189	186	183	102.0	103.7

<i>Production.</i>					
(ooo centals)					
	1938	1937	Average 1932-1936	% 1938	
				1937 = 100	Average = 100
Hay and clover	275,960	260,600	256,160	105.9	107.7
Alfalfa	41,220	42,140	34,670	97.8	118.9
Grain hay	33,480	35,360	44,120	94.7	75.9
Fodder maize	88,256	78,550	68,007	112.4	129.8
Turnips, etc.	38,160	36,300	37,248	105.1	102.4

(ooo short tons)					
	1938	1937	Average 1932-1936	% 1938	
				1937 = 100	Average = 100
Hay and clover	13,798	13,030	12,808	105.9	107.7
Alfalfa	2,061	2,107	1,734	97.8	118.9
Grain hay	1,674	1,768	2,206	94.7	75.9
Fodder maize	4,413	3,927	3,400	112.4	129.8
Turnips, etc.	1,908	1,815	1,862	105.1	102.4

Algeria: In January the growth of annual fodder crops, consisting especially of mixed vetches and oats, was satisfactory, in spite of a slight backwardness of growth due to night frosts. Pastures on the whole were in good condition, except in the southern tablelands, where first growth is very slow. If the fine weather continues, growth will be stimulated.

Egypt: Growth of the clover crop is on the whole satisfactory, notwithstanding lack of rain during the month. Second cutting was general. Third cutting was started in a few regions. In northern districts hay-making was also started.

LIVESTOCK AND DERIVATIVES

Livestock in Germany (1937 territory).

In the following table are given data of the last annual census with the data of the four preceding years for comparison.

Numbers of Livestock in Germany.

Classification of categories by sex and age	3 December 1938	3 December 1937	3 December 1936	3 December 1935	5 December 1934 1)
<i>Horses 2)</i>	3,442,700	3,433,800	3,410,300	3,389,839	3,360,423
Under 1 year old	238,300	238,000	225,500	207,931	182,892
From 1 to 2 years	231,200	218,100	200,100	176,407	140,500
From 2 to 3 years	218,000	199,800	176,500	144,215	137,225
From 3 to 4 years	195,100	170,600	142,100	137,131	129,076
From 4 to 5 years	191,100	165,100	157,500	158,341	168,644
From 5 to 9 years	563,400	576,600	605,400	682,649	780,446
From 9 to 14 years	878,200	974,700	1,054,100	1,124,238	1,119,613
14 years and over	927,400	890,900	849,100	758,977	702,027
<i>Asses and mules</i>	5,900	7,200	8,400	9,804	10,927
<i>Cattle</i>	19,911,200	20,503,600	20,088,000	18,937,861	19,198,358
Calves under 3 months	1,481,400	1,555,400	1,635,000	1,451,656	1,355,817
Calves 3 months to 1 year:					
males	3,069,600	3,370,200	3,333,000	726,819	787,331
females				2,151,209	2,265,642
Young stock, 1 to 2 years:					
males	3,360,000	3,412,800	3,098,500	656,936	719,938
females				2,210,596	2,249,411
Bulls and oxen, 2 years and over:	780,300	774,900	735,300	667,293	729,291
including:					
bulls for service	—	—	—	(109,515)	(110,444)
oxen and bulls for draught	(410,600)	(427,400)	(394,800)	(353,585)	(349,570)
Heifers, 2 years and over	11,219,900	11,390,300	11,286,200	1,006,007	11,090,928
Cows, 2 years and over				10,067,345	
including:					
cows exclusively for milk production	—	—	—	(7,475,572)	(7,682,188)
cows for milk and for draught	—	—	—	(2,478,826)	(2,437,907)
milch cows	(9,962,400)	(10,224,000)	(10,122,400)	—	—
<i>Sheep</i>	4,809,000	4,692,300	4,340,800	3,927,679	3,482,605
Male lambs under 1 year	1,572,400	1,539,600	1,444,200	482,326	1,083,781
Female lambs under 1 year				816,469	
Animals, 1 year and over:					
males	3,236,600	3,152,700	2,896,600	299,545	248,648
females				2,329,339	2,150,176
<i>Pigs</i>	23,481,300	23,846,900	25,891,600	22,826,625	23,289,241
Sucking pigs under 8 weeks old	4,271,300	4,083,100	5,211,700	4,767,863	4,538,569
Young pigs from 8 weeks to 6 months old	9,658,400	10,028,600	10,958,500	9,583,269	10,116,999
Pigs from 6 months to 1 year old	7,144,100	7,406,100	7,256,900	6,198,500	6,538,649
including:					
sows for breeding (total)	454,000	375,000	518,200	543,818	453,839
(sows covered)	(256,200)	(196,400)	(286,200)	(314,628)	...
Pigs 1 year old and over	2,407,500	2,329,100	2,464,500	2,276,993	2,284,024
including:					
sows for breeding (total)	1,376,000	1,282,300	1,520,400	1,414,062	1,337,234
(sows covered)	(854,300)	(780,800)	(915,000)	(885,254)	...

Classification of categories by sex and age	3 December 1938	3 December 1937	3 December 1936	3 December 1935	5 December 1934 1)
<i>Goats</i>	2,508,900	2,630,100	2,633,500	2,501,411	2,493,647
Under 1 year:					
males	384,100	451,500	456,600	49,134	54,773
females				351,693	345,070
Animals, 1 year and over:					
he-goats	2,144,800	2,178,600	2,176,900	49,870	45,020
nanny-goats				2,050,714	2,048,784
<i>Poultry</i> 3)	97,129,800	93,260,600	97,036,300	94,144,863	94,416,572
Fowls (total)	88,529,600	85,392,600	88,422,700	86,084,291	85,850,335
Geese	5,944,500	5,465,000	5,889,500	5,473,059	5,839,387
Ducks	2,655,700	2,403,000	2,724,100	2,587,513	2,726,850
<i>Beehives</i>	2,561,800	2,467,900	2,503,400	2,129,397	2,002,884
<i>Rabbits</i>	8,044,800	...	8,008,000	...	7,479,842
including Angora	228,100	...	165,100	...	196,308

1) Not including the Saar Territory. — 2) Not including army horses. — 3) Not including turkeys and guineafowl.

Livestock in Lithuania.

Number of Livestock (in thousand)

Classification	1938		1937		1936	
	December	June	December	June	December	June
<i>Horses</i>	557.5	549.6	552.1	549.7	553.1	546.9
Colts under 1 year	—	40.7	—	40.9	—	38.6
Horses 1 year old and under 3	—	71.8	—	66.3	—	63.1
Horses 3 years old and above	—	437.1	—	442.5	—	444.6
<i>Cattle</i>	1,192.8	1,164.1	1,172.2	1,163.0	1,178.0	1,148.5
Calves under 1 year	—	165.8	—	170.8	—	170.2
Cattle 1 year old and above	—	223.5	—	218.7	—	215.5
Milch cows	778.8	774.8	765.0	733.5	764.0	762.8
<i>Sheep</i>	619.0	1,241.2	614.3	1,288.5	656.4	1,275.4
Sheep under 1 year old	—	750.7	—	767.7	—	762.0
Sheep 1 year old and above	—	490.5	—	520.8	—	513.4
<i>Pigs</i>	1,249.5	1,186.6	1,192.0	1,183.5	1,190.0	1,210.0
Pigs under 6 months old	—	808.4	—	798.7	—	833.6
Pigs 6 months old and above	—	378.2	—	384.8	—	376.4
<i>Poultry:</i>						
Hens and cocks (excluding chickens)	4,592.7	2,240.1	4,381.2	2,229.9	4,171.3	2,176.7
Geese	258.4	891.3	246.1	853.0	270.0	893.6

Animals slaughtered (number).

Classification	1938	1937	1936	1935	1934	1933
Cattle	275,678	269,363	222,202	196,825	214,588	224,718
Young calves under 6 months old	164,803	151,619	124,625	108,498	114,313	118,066
Young cattle from 6 months to 2 years	23,825	28,522	21,943	18,851	24,998	28,916
Cattle over 2 years	87,050	89,222	75,624	69,476	75,277	77,736
Sheep	84,719	78,348	61,313	46,406	60,144	59,217
Pigs	422,582	403,200	433,709	414,032	417,586	508,966

Production and Consumption of Dairy Products in the Netherlands.

The following data (provisional for 1938) show the average weekly production and consumption of dairy products which are supervised under the 1933 law on assistance to agriculture during the crisis.

	1938	1937 (thousand pounds)	1936	1935
<i>Production:</i>				
Butter	4,127	4,116	4,052	3,865
Cheese	4,004	3,933	3,675	3,497
Condensed Milk	6,636	7,134	5,240	4,043
Milk powder	1,199	1,177	1,281	814
Casein.	101	104	42	55
<i>Consumption:</i>				
Butter	1,878	1,856	1,812	2,046
Margarine	2,597	2,394	2,044	2,026

A compulsory addition of a certain percentage of butter is made to margarine in the Netherlands for the purpose of increasing butter consumption. This admixture is included under butter.

Winter Census of Livestock in England and Wales.

The following table shows the numbers of livestock in England and Wales on December 4, 1938 with comparative figures for June 4, 1938 and December 4, 1937.

	Dec. 4, 1938	June 4, 1938 (thousands)	Dec. 4, 1937
<i>Cattle</i>	6,849	6,714	6,761
Calves intended for slaughter as calves	44	56	48
Bulls and bull calves being reared for service	54	47	49
Bulls for service	95	88	93
Heifers in calf	458	463	438
Cows in calf but not in milk	660	375	648
Cows and heifers in milk	2,050	2,237	2,040
Other cattle: under 1 year old	1,302	1,263	1,278
1 year old and under 2	1,304	1,290	1,272
2 years old and over	882	895	895
<i>Sheep</i>	13,899	17,913	13,740
Rams and ram lambs for service	323	360	253
Ewe lambs intended for breeding	1,265	652	1,526
Ewes for breeding	8,535	8,533	8,005
Other sheep: under 1 year old	3,053	7,036	3,447
1 year old and over	723	1,332	509
<i>Pigs</i>	3,854	3,564	3,914
Boars for service	32	30	32
Sows for breeding	447	433	448
Other pigs: under 2 months old	842	885	830
2 months old and over	2,533	2,216	2,604
<i>Total poultry</i>	36,601	52,540	36,163

Dairy Production in Switzerland.

The Swiss Dairy Commission has just issued the following provisional dairy statistics.

		1938	1937
<i>Milk herds:</i>			
Milch cows (census)	Number	912,516	893,004
Goats for milking (estimate)	"	149,000	152,000
<i>Milk production:</i>			
Cows 1938: 6,770 lb.; 1937: 6,680 lb. per year) } thousand lb.		6,305,000	6,091,000
Goats (880 lb. per year)			
<i>Milk deliveries at central stations (Brugg estimates):</i>			
+ or — compared with the previous year		+ 3.6 %	+ 1.6 %
		(thousand lb.)	
<i>Utilization of milk:</i>			
For feeding to livestock		1,040,000	1,040,000
For consumption in producers' households		840,000	840,000
For sale to other consumers		1,390,000	1,411,000
Exported		400	400
Imported		20,000	18,000
For processing (cheese, butter, condensed milk, etc.)		3,100,000	2,824,000
<i>Dairy products obtained:</i>			
Cheese of all kinds		118,000	117,000
Butter of all kinds		66,000	57,000
Condensed milk and powdered whole milk		20,000	18,000

Milk deliveries to central stations and cheese factories were 4.2 per cent. higher on the average than in 1937. The larger size of herds and the exceptionally fine autumn more than offset the ravages of foot-and-mouth diseases. The effects of the latter were to be detected in milk deliveries to markets in Switzerland as a whole only at the end of the year. Assuming that production in producers' households was the same as in 1937, total Swiss production in 1938 was 6,305 million lb., or 3.5 per cent. higher than in 1937. The average production per cow was 6,770 lb., against 6,680 in 1937, and per goat 880 lb.

Consumption in towns having fallen still lower, the surplus milk production had to be used for manufacture of cheese, condensed milk and especially butter.

An increase in stocks of cheese and butter was inevitable in the first and again in the second half of 1938, even though foreign butter was displaced by home-produced butter on the internal market (imports fell from 5,623,000 lb. in 1937 to 343,000 lb. in 1938) and Swiss exports of cheese and condensed milk was increased, though only by heavy financial sacrifices. The cost of milk to the producer was reduced by 1 centime per litre as from September 1, 1938.

Current information on livestock and derivatives.

France: At the end of January the foot-and-mouth epidemic was nearly over, in spite of isolated appearances. Stock however in a number of districts were suffering the after-effects of the disease.

Hungary: On February 7 the condition of livestock was generally satisfactory.

Ireland: Milk yields were below normal owing to wet weather in January.

Latvia: In January milk production showed a tendency to increase.

Netherlands: Feeding conditions for milck cows were good in all parts in January. Compared with the same month of last year total milk production declined from 1 to 2 per cent. Production hardly differed from normal in Groningen, Overijsel, Gelderland South Holland and Limburg. It increased by 1 per cent. in Friesland. Elsewhere, it fell 3 to 5 per cent.

United Kingdom: Milk yields were difficult to maintain in January.

Canada: According to January reports on the dairy situation, feed supplies are holding out well in all parts of Canada, although in the Maritime Provinces the low quality and uneven distribution of grains are having an adverse influence on dairying. While heavier grain rations are needed to maintain production, the tendency is to restrict grain purchases on account of low butter fat prices. Much the same situation exists in Ontario and Quebec although more grains, roots and ensilage are available. Ample feeds are available in the Prairie Provinces and water supplies are sufficient. Low cost concentrates and mill feeds helped to offset the effect of reduced yields in British Columbia and farmers are not expected to experience a shortage of roughage until early spring.

Dairy cows are being maintained in fair condition but unsatisfactory results from low quality feeds in the eastern Provinces are beginning to appear. There is no evidence of any change in the numbers of cows being freshened in Eastern Canada but cows came into lactation later than usual in parts of the Prairies and spring freshenings will also be delayed. There is very little change from last year in the dairy herd in the Prairie Provinces.

Milk production in February was expected to exceed the quantity obtained in February 1938.

The production of creamery butter in Canada on 1938 was 266,887,000 lb. compared with 246,387,000 lb. in 1937. Factory cheese production was 121,315,000 lb. compared with 128,447,000 lb. in 1937.

United States: There were as many or more cattle on feed on January 1 this year compared with last in all the Corn Belt States, except Michigan, with the largest relative increase in the western States where cattle feeding had been greatly reduced during the drought years. For the whole region the estimated increase in numbers on feed over last year is 7 per cent. This increase follows one of 15 per cent. made a year earlier but the numbers have not yet reached those of the years of large maize production prior to the drought years. The difference is larger in western than in eastern States of the Belt.

The increase in the Corn Belt is partially offset by a drop of 12 per cent. in the numbers on feed in the 11 Western States. There were decreases also in Texas and Oklahoma.

The numbers of sheep and lambs on feed on January 1, 1939 in the principal feeding States was estimated at 5,700,000 head, a decrease of 5 per cent. from the 5,997,000 head on feed on January 1 last year. Numbers were smaller this year in the Corn Belt States, a slight increase in the Western States of this area being more than offset by the decrease in the Eastern States. There was a decrease also in the Western Sheep States.

In view of the smaller number of sheep and lambs on feed this year, total slaughter during the remainder of the marketing season (up to end of April) is likely to be somewhat smaller than a year earlier, when such slaughter approached record proportions. Lamb marketings after May 1 will depend largely on the outturn of the spring lamb crop. Although conditions in early January were favourable for the spring lamb crop in most States, it is not probable that conditions throughout the winter and early spring will remain as generally favourable as they were last year, when the total lamb crop was the largest on record. Conditions in Texas in early January were unfavourable for the early spring lamb crop but, with an improvement in grazing conditions, marketings may be as large as last year.

According to the December pig crop report, the 1938 fall pig crop was estimated to be 27,651,000 head, an increase of 18 per cent. on 1937. The 1938 fall crop was the largest since 1933. This increase reflects increases in both the number of sows farrowed and in the number of pigs saved per litter.

The increase of 18 per cent. in the 1938 fall crop followed an increase of 13 per cent. in the 1938 spring crop. The combined spring and fall crop was estimated to be about 71.1 million head, or 15 per cent. larger than that of 1937. This is the largest yearly pig crop since 1933 but it is about 11 per cent. smaller than the 1929-33 average, because the crop in the West North Central States and in the Western States was still considerably below the pre-drought average.

Breeding intentions reported about December 1 indicated that the number of sows to farrow in the spring of 1939 will be about 20 per cent. larger than the number farrowed in the spring of 1938. If feed crop production this year is average, it is not unlikely that the total crop of 1939 will reach or exceed 80 million head, which is the average of the five years prior to the drought.

Algeria: In January stock were in excellent condition in Oran and most of Constantine. In Alger their condition was rather poor, particularly on the tablelands, owing to the unfavourable weather.

French Morocco: After a spell of persistent rain during the first three weeks of December, conditions became more favourable in January. Water supplies were sufficient. Animals suffered chiefly from cold and, except on mountains and in the normally cold regions, there was sufficient growth on grazings to provide a minimum bite for native animals. Europeans are supplementing grazing with indoor feeding with straw or green fodder.

Current information on Sericulture.

Production of Fresh Cocoons.

COUNTRIES	QUANTITIES OF EGGS PREPARED FOR INCUBATION					PRODUCTION OF FRESH COCOONS				
	1938	1937	Average 1932 to 1936	% 1938		1938	1937	Average 1932 to 1936	% 1938	
				1937	Average				1937	Average
ooo ounces					ooo pounds					
Bulgaria	38	31	27	121.8	139.9	4,803	3,618	3,040	132.8	158.0
France	11	13	16	88.9	71.9	1,316	1,422	1,867	92.5	70.5
Greece	78	61	60	126.4	129.6	7,496	6,617	5,292	113.3	141.6
Italy	349	489	463	71.5	75.4	44,028	70,459	66,741	62.5	66.0
Yugoslavia	14	19	20	72.9	71.1	1,059	1,114	1,185	95.0	89.3
U. S. S. R.	—	—	—	—	—	2) 48,362	2) 44,367	35,104	—	—
Cyprus	2	2	2	111.0	155.8	336	295	307	114.0	109.3
Chosen { s)	203	206	217	98.5	93.2	31,408	31,975	31,903	98.2	98.4
{ t)	139	148	136	94.1	102.5	16,858	18,173	15,900	92.8	106.0
Japan { s)	2,069	2,339	2,617	88.5	79.0	337,832	376,198	380,909	89.8	88.7
{ t)	2,441	2,713	3,067	90.0	79.6	267,370	307,822	351,255	86.9	76.1
Syria and Lebanon. . .	34	32	40	104.9	86.0	3,241	2,923	2,996	110.9	108.2
TOTALS	—	—	—	—	—	764,109	864,983	896,499	88.3	85.2

s) Spring cocoons. — t) Summer-autumn cocoons. — 1) Approximate data. — 2) Quantities relate to spring rearings delivered to the Government up to the beginning of July.

TRADE

COUNTRIES	DECEMBER				FIVE MONTHS (August 1-December 31)				TWELVE MONTHS (August 1-July 31)	
	EXPORTS		IMPORTS		EXPORTS		IMPORTS		EXPORTS	IMPORTS
	1938	1937	1938	1937	1938	1937	1938	1937	1937-38	1937-38
Wheat. — Thousand centals (1 cental = 100 lb.).										
Exporting Countries:										
Bulgaria	0	372	0	0	0	2,254	0	0	4,666	0
Hungary	311	773	0	0	7,811	2,243	0	0	4,053	0
Lithuania	108	0	0	0	247	0	0	0	41	0
Poland-Danzig	65	1	0	32	256	1	65	34	36	241
Romania	3,822	1,291	0	0	14,277	12,496	0	0	19,305	0
Yugoslavia	157	24	0	0	2,421	2,338	0	0	2,352	0
U. S. S. R. . . . .	...	...	...	...	10,209	5,313	3)	3)	27,335	2,837
Canada	9,590	3,982	73	127	48,689	26,210	548	612	46,029	3,446
United States	2,658	5,787	300	47	15,320	18,761	2,133	1,158	55,528	1,323
Argentina	2,300	3,393	—	—	12,169	9,843	—	—	40,434	—
Chile . . . . .	...	...	...	...	3)	0	3)	2	0	1
Uruguay . . . . .	...	...	...	...	2)	259	2)	2)	215	496
India: by sea	23	779	362	7	1,924	4,356	1,642	28	9,569	481
" by land . . . . .	...	...	...	...	3)	97	3)	30	58	433
Iraq . . . . .	...	...	...	...	2)	339	2)	0	1,076	1
Iran . . . . .	...	...	...	...	1)	0	1)	0	489	2
Manchukuo . . . . .	...	...	...	...	4)	0	4)	1	413	4
Syria and Lebanon	29	0	0	83	109	3	178	185	36	480
Turkey . . . . .	...	...	...	...	1)	553	1)	—	2,115	—
Algeria	131	885	65	50	615	2,666	543	143	4,184	700
Egypt . . . . .	...	...	...	...	1)	1	1)	0	436	18
French Morocco	233	171	0	207	1,468	700	0	279	1,731	289
Tunisia	111	133	1	1	396	1,347	7	37	2,764	40
Australia	2,503	4,391	0	0	10,882	11,481	0	0	56,017	0
Importing Countries:										
Germany 5)	0	0	2,456	941	0	0	15,271	8,689	0	21,123
Austria 5)	0	1	590	368	2	5	1,959	1,332	9	4,081
Belgo-Luxemb. E. U.	970	289	1,501	3,006	1,512	1,137	11,168	13,217	2,630	24,945
Denmark	0	10	164	270	49	144	1,313	1,442	276	3,832
Spain	—	—	—	—	—	—	—	—	—	—
Estonia	0	0	0	1	0	10	11	22	10	103
Finland	0	0	13	18	0	0	440	334	0	987
France	901	10	940	1,241	1,524	247	4,316	4,831	286	10,899
Greece . . . . .	...	...	...	...	3)	0	3)	1,482	1,535	0
Ireland	0	0	1,181	965	0	0	4,400	3,596	0	10,920
Italy	2	0	658	135	28	37	2,450	1,810	40	5,734
Latvia	0	0	185	75	0	0	295	170	0	592
Norway	0	0	255	78	0	0	1,750	1,364	0	3,246
Netherlands	1	0	1,316	900	15	15	7,020	5,472	16	12,667
Portugal . . . . .	...	...	...	...	1)	0	1)	504	21	0
United Kingdom	75	104	8,568	9,049	780	593	50,647	45,100	1,286	108,330
Sweden	6	353	96	106	11	574	704	502	1,425	996
Switzerland	0	0	1,098	1,008	0	1	4,950	3,808	3	8,972
Czecho-Slovakia	80	17	0	357	84	379	390	574	860	2,793
Brazil . . . . .	—	—	...	...	—	—	3)	3,938	3,294	20,872
Colombia . . . . .	—	—	...	...	—	—	3)	65	74	319
Peru . . . . .	...	...	...	...	2)	0	2)	644	979	3,003
Burma	1	1	7	8	2	2	40	54	6	127
Ceylon	—	—	1	5	—	—	32	44	—	79
China . . . . .	...	...	...	...	1)	99	1)	0	0	2
Chosen . . . . .	...	...	...	...	1)	0	1)	22	0	22
Taiwan . . . . .	—	—	...	...	—	—	2)	0	—	0
Indochina . . . . .	—	—	...	...	2)	0	2)	2	0	1
Japan . . . . .	—	—	...	...	—	—	2)	148	807	2,802
British Malaya . . . . .	...	...	...	...	2)	1	2)	4	3	11
Palestine . . . . .	...	...	...	...	1)	0	1)	241	63	573
Union of South Africa . . . . .	...	...	...	...	1)	0	1)	1,022	5	555
New Zealand . . . . .	...	...	...	...	1)	0	1)	321	439	2,717
Totals	24,077	22,767	19,830	19,085	132,149	104,560	120,700	102,332	286,415	270,722

1) Up to 30 November. — 2) Up to 31 October. — 3) Up to 30 September. — 4) Up to 31 August. — 5) From 1 April 1938 not including trade between Germany and Austria..

COUNTRIES	DECEMBER				FIVE MONTHS (August 1-December 31)				TWELVE MONTHS (August 1-July 31)	
	EXPORTS		IMPORTS		EXPORTS		IMPORTS		EXPORTS	IMPORTS
	1938	1937	1938	1937	1938	1937	1938	1937	1937-38	1937-38
Exporting Countries:										
Bulgaria	0	8	0	0	2	33	0	0	46	0
Spain	—	—	—	—	—	—	—	—	—	—
France	349	126	62	93	947	724	375	426	1,605	963
Hungary	147	96	0	0	407	610	0	0	958	0
Italy	186	178	0	19	826	926	242	69	2,305	160
Latvia	0	0	0	0	0	0	0	0	15	0
Lithuania	0	0	0	0	11	0	0	0	5	0
Poland - Danzig	73	30	0	0	395	30	0	0	322	0
Romania	0	0	0	0	0	1	0	0	1	0
Czecho-Slovakia	78	194	2	2	79	411	2	3	752	5
Yugoslavia	1	21	0	0	20	109	0	0	306	0
U. S. S. R.	—	—	—	—	292	315	15	22	949	52
Canada	716	662	10	17	3,876	3,286	69	67	7,077	172
United States	1,059	923	6	6	4,558	4,361	81	8	10,179	183
Argentina	148	171	—	—	798	720	—	—	1,768	—
Uruguay	—	—	—	—	86	0	0	0	225	0
Chosen	—	—	—	—	238	73	0	0	217	0
India: by sea	122	112	0	0	605	576	0	1	1,450	4
Iraq	—	—	—	—	45	34	0	0	116	1
Iran	—	—	—	—	0	0	0	0	0	0
Japan	—	—	—	—	1,616	1,156	0	11	6,168	22
Algeria	28	41	14	3	226	244	78	20	657	113
French Morocco	0	0	0	0	0	0	0	0	0	0
Tunisia	26	30	2	12	156	142	51	39	310	112
Australia	855	943	0	0	5,527	4,822	0	0	12,976	1
Importing Countries:										
Germany 5)	1	13	51	213	6	15	80	590	84	1,277
Austria 5)	0	1	69	37	1	8	119	150	10	368
Belgo-Luxemb. E. U.	4	22	2	7	35	46	9	28	100	35
Denmark	4	2	19	24	15	14	239	92	29	294
Estonia	0	0	0	0	0	0	0	0	0	0
Finland	0	0	26	24	0	0	287	160	0	574
Greece	—	—	—	—	0	0	4	2	0	23
Ireland	0	0	6	11	0	0	49	53	0	118
Norway	0	0	104	61	4	2	493	272	3	684
Netherlands	1	3	125	157	2	162	602	582	191	1,472
Portugal	—	—	—	—	0	0	17	15	0	43
United Kingdom	187	167	719	872	1,184	772	3,605	3,816	2,049	8,815
Sweden	1	1	2	0	2	8	4	1	18	3
Haiti	—	—	—	—	—	—	52	67	—	169
Brazil	—	—	—	—	—	—	205	128	—	857
Chile	—	—	—	—	0	0	7	5	0	44
Colombia	—	—	—	—	—	—	3	2	—	15
Peru	—	—	—	—	0	0	12	7	0	38
Burma	0	0	62	43	0	1	277	253	3	633
Ceylon	—	—	32	32	—	—	172	141	—	322
China	—	—	—	—	32	0	2,118	253	0	3,680
Netherlands Indies:	—	—	—	—	—	—	—	—	—	—
Java and Madura	—	—	—	—	—	—	415	392	—	1,093
Outer Provinces	—	—	—	—	—	—	250	235	—	644
Indochina	—	—	79	43	0	0	279	176	1	434
British Malaya	—	—	—	—	35	34	373	405	131	1,457
Manchukuo	—	—	—	—	0	43	584	263	202	2,897
Palestine	—	—	—	—	0	1	136	148	2	436
Syria and Lebanon	0	1	11	30	15	18	39	49	32	105
Egypt	—	—	—	—	0	19	14	16	32	85
Union of South Africa	—	—	—	—	1	4	3	4	6	11
New Zealand	—	—	—	—	0	0	0	0	0	1
Totals	3,986	3,745	1,403	1,706	22,042	19,720	11,361	8,971	51,300	28,415

1) Up to 30 November. — 2) Up to 31 October. — 3) Up to 30 September. — 4) Up to 31 August. — 5) From 1 April 1938 not including trade between Germany and Austria.

COUNTRIES	DECEMBER				FIVE MONTHS (August 1-December 31)				TWELVE MONTHS (August 1-July 31)	
	NET EXPORTS *)		NET IMPORTS **)		NET EXPORTS *)		NET IMPORTS **)		NET EX. *)	NET IM. **)
	1938	1937	1938	1937	1938	1937	1938	1937	1937-38	1937-38
Total Wheat and Flour †). — Thousand centals (1 cental = 100 lb.).										
Germany 5)	—	—	2,523	1,208	—	—	15,370	9,456	—	22,714
Austria 5)	—	—	682	416	—	—	2,114	1,517	—	4,549
Belgo-Luxem. E. U.	—	—	528	2,697	—	—	9,620	12,055	—	22,230
Bulgaria	0	383	—	—	3	2,297	—	—	4,727	—
Denmark	—	—	184	291	—	—	1,563	1,401	—	3,896
Spain	—	—	—	—	—	—	—	—	—	—
Estonia	0	—	—	1	—	—	11	12	—	93
Finland	—	—	49	50	—	—	822	547	—	1,753
France	343	—	—	1,187	—	—	2,030	4,188	—	9,767
Greece	—	—	—	—	—	—	1,487	1,537	—	10,951
Hungary	507	901	—	—	8,354	3,056	—	—	5,331	—
Ireland	—	—	1,189	979	—	—	4,465	3,666	—	7,861
Italy	—	77	408	—	—	—	1,643	630	—	2,833
Latvia	—	—	185	75	—	—	295	170	—	583
Lithuania	109	0	—	—	262	0	—	—	48	—
Norway	—	—	393	159	—	—	2,403	1,725	—	3,924
Netherlands	—	—	1,481	1,105	—	—	7,804	6,017	—	14,368
Poland-Danzig	163	0	—	—	718	7	—	—	225	—
Portugal	—	—	—	—	—	—	526	40	—	1,431
Romania	3,822	1,292	—	—	14,277	12,497	—	—	19,307	—
United Kingdom	—	—	9,203	9,884	—	—	53,096	48,565	—	116,072
Sweden	—	247	91	—	—	81	696	—	449	—
Switzerland 6)	—	—	1,098	1,008	—	—	4,950	3,807	—	8,969
Czecho-Slovakia	180	—	—	84	—	349	205	—	—	936
Yugoslavia	158	53	—	—	2,447	2,483	—	—	2,758	—
Totals Europe	5,282	2,962	18,014	19,144	26,061	20,770	109,100	95,333	32,845	232,930
U. S. S. R.	—	—	—	—	3) 10,579	3) 5,704	—	—	25,694	—
Canada	10,457	4,715	—	—	53,216	29,889	—	—	51,789	—
United States	3,763	6,962	—	—	19,157	23,407	—	—	67,534	—
Haiti	—	—	—	—	—	—	1) 70	1) 89	—	226
Argentina	2,497	3,622	—	—	13,232	10,803	—	—	42,790	—
Brazil	—	—	—	—	—	—	3) 4,211	3) 3,465	—	22,015
Chile	—	—	—	—	—	—	3) 11	3) 7	—	59
Colombia	—	—	—	—	—	—	3) 70	3) 76	—	340
Peru	—	—	—	—	—	—	2) 660	2) 989	—	3,054
Uruguay	—	—	—	—	2) 371	—	—	2) 215	513	—
Burma	—	—	88	64	—	—	407	388	—	961
Ceylon	—	—	44	48	—	—	261	232	—	508
China	—	—	—	—	—	—	1) 2,683	1) 338	—	4,904
Chosen	—	—	—	—	1) 295	1) 98	—	—	257	—
Taiwan	—	—	—	—	—	—	2) 0	2) 0	—	0
India: by sea	—	922	177	—	1,087	5,094	—	—	11,017	—
» : by land	—	—	—	—	3) 67	—	—	3) 16	236	—
Netherlands Indies:	—	—	—	—	—	—	—	—	—	—
Java and Madura	—	—	—	—	—	—	1) 553	1) 522	—	1,457
Outer Provinces	—	—	—	—	—	—	1) 334	1) 314	—	859
Indochina	—	—	—	—	—	—	2) 181	2) 137	—	579
Iraq	—	—	—	—	2) 399	2) 359	—	—	1,229	—
Iran	—	—	—	—	1) 487	—	1) 0	—	487	—
Japan	—	—	—	—	2) 2,007	2) 720	—	—	5,393	—
British Malaya	—	—	—	—	—	—	2) 453	2) 498	—	1,777
Manchukuo	—	—	—	—	—	—	4) 780	4) 289	—	3,185
Palestine	—	—	—	—	—	—	1) 422	1) 243	—	1,135
Syria and Lebanon	15	—	—	122	—	—	101	222	—	542
Turkey	—	—	—	—	1) 553	1) 458	—	—	2,115	—
Algeria	86	886	—	—	269	2,822	—	—	4,210	—
Egypt	—	—	—	—	1) 72	—	1) 17	—	348	—
French Morocco	233	—	—	37	1,468	421	—	—	1,442	—
Tunisia	142	155	—	—	529	1,447	—	—	2,988	—
Union of South Africa	—	—	—	—	—	—	1) 1,025	1) 1	—	559
Australia	3,643	5,648	—	—	18,252	17,910	—	—	73,318	—
New Zealand	—	—	—	—	—	—	1) 321	1) 440	—	2,686
Totals	26,118	25,872	18,323	19,415	147,542	120,461	121,660	103,814	324,205	277,776

*) Excess of exports over imports. — **) Excess of imports over exports.

†) Flour reduced to grain on the basis of the coefficient: Thousand centals of flour = 1,333-333 centals of grain.

1) Up to 30 November. — 2) Up to 31 October. — 3) Up to 30 September. — 4) Up to 31 August. — 5) From 1 April 1938 not including trade between Germany and Austria. — 6) Wheat only.

COUNTRIES	DECEMBER				FIVE MONTHS (August 1-December 31)				TWELVE MONTHS (August 1-July 31)	
	EXPORTS		IMPORTS		EXPORTS		IMPORTS		EXPORTS	IMPORTS
	1938	1937	1938	1937	1938	1937	1938	1937	1937-38	1937-38
<i>Exporting Countries:</i>										
Rye. — Thousand centals (1 cental = 100 lb.).										
Bulgaria	0	18	0	0	0	67	0	0	158	0
Spain	—	—	—	—	—	—	—	—	—	—
Hungary	1	33	0	0	153	459	0	0	1,629	0
Latvia	0	0	0	0	0	0	0	0	0	0
Lithuania	207	0	0	0	815	0	0	0	1,084	0
Netherlands	291	115	40	121	645	829	305	610	1,617	1,308
Poland-Danzig . . .	1,200	0	0	2	2,205	47	0	2	228	13
Romania	70	418	0	0	104	3,651	0	0	4,090	0
Yugoslavia	0	44	0	0	0	135	0	0	156	0
U. S. S. R. . . . .	...	...	...	...	2) 1,428	2) 846	2) 0	2) 0	8,314	0
Canada	0	0	0	12	469	211	0	24	363	35
United States	0	351	0	0	374	2,084	0	0	3,585	0
Argentina	19	0	—	—	58	39	—	—	96	—
Algeria	12	0	0	0	22	11	0	0	15	0
<i>Importing Countries:</i>										
Germany 3)	0	0	753	79	2	0	1,162	883	0	1,596
Austria 3)	0	2	4	557	2	9	96	2,280	15	4,131
Belgo-Luxemb. E. U.	7	40	1,104	153	17	40	2,861	850	90	2,462
Denmark	0	1	300	305	1	2	976	1,460	13	3,046
Estonia	0	0	64	23	120	1	182	239	102	325
Finland	0	0	9	211	0	0	249	344	0	668
France	0	0	1	1	0	0	10	11	0	17
Greece . . . . .	...	...	...	...	2) 0	2) 0	2) 0	2) 0	0	1
Italy	0	0	164	1	0	0	372	1	0	319
Norway	0	0	300	447	0	0	1,387	1,108	0	2,617
United Kingdom . .	0	2	18	5	2	2	80	58	3	125
Sweden	0	0	4	5	0	1	65	6	1	108
Switzerland	0	0	48	42	0	0	230	82	0	295
Czecho-Slovakia . .	0	0	0	522	0	0	524	1,295	3	4,148
Palestine . . . . .	—	—	...	...	—	—	1) 58	1) 42	—	146
French Morocco . .	0	0	0	0	0	0	0	0	0	0
Totals	1,807	1,024	2,809	2,486	6,417	8,436	8,557	9,295	21,562	21,360

1) Up to 30 November. — 2) Up to 30 September. — 3) From 1 April 1938 not including trade between Germany and Austria.

COUNTRIES	DECEMBER				FIVE MONTHS (August 1-December 31)				TWELVE MONTHS (August 1-July 31)	
	EXPORTS		IMPORTS		EXPORTS		IMPORTS		EXPORTS	IMPORTS
	1938	1937	1938	1937	1938	1937	1938	1937	1937-38	1937-38
Barley. — Thousand centals (1 cental = 100 lb.).										
<i>Exporting Countries:</i>										
Bulgaria	0	0	0	0	0	245	0	0	256	0
Denmark	353	358	0	24	1,370	2,354	9	78	3,345	679
Spain	—	—	—	—	—	—	—	—	—	—
Hungary	16	4	0	0	48	104	0	0	170	0
Latvia	0	0	0	0	0	0	0	2	0	3
Lithuania	7	0	0	0	80	0	0	0	273	0
Poland - Danzig	995	492	0	0	2,364	1,722	0	0	4,605	0
Romania	378	460	0	0	2,486	3,642	0	0	5,107	0
Sweden	0	0	0	0	0	0	0	0	1	0
Czecho-Slovakia	162	312	0	0	563	313	0	1	1,009	1
Yugoslavia	0	13	0	0	0	104	8	0	132	11
U. S. S. R. . . . .	...	...	...	...	3) 4,534	3) 2,946	3) 0	3) 0	6,402	0
Canada	543	629	0	0	5,051	3,754	1	0	7,077	0
United States	310	407	0	14	3,744	4,749	0	446	8,747	506
Argentina	88	239	—	—	315	486	—	—	4,831	—
Chile . . . . .	...	...	—	—	3) 224	3) 27	—	—	1,403	—
India: by sea	1	144	1	1	34	306	20	30	476	39
Iraq . . . . .	...	...	...	...	2) 1,144	2) 1,426	2) 0	2) 0	4,150	1
Iran . . . . .	...	...	...	...	1) 24	1) 143	1) 0	1) 0	279	0
Manchukuo . . . . .	...	...	—	—	4) 0	4) 0	—	—	22	—
Syria and Lebanon	105	0	3	17	502	40	4	26	242	37
Turkey . . . . .	...	...	—	—	1) 1,309	1) 1,233	—	—	2,846	—
Algeria	3	70	35	2	159	226	54	12	462	198
Egypt . . . . .	...	...	...	...	1) 62	1) 76	1) 4	1) 0	116	1
French Morocco	283	0	0	151	731	0	0	217	41	628
Union of South Afr. . . . .	...	...	...	...	1) 0	1) 0	1) 0	1) 0	0	0
Australia	39	207	0	0	111	267	0	0	2,568	0
<i>Importing Countries:</i>										
Germany 5)	0	0	977	419	0	0	4,490	2,166	0	7,695
Austria 5)	0	0	124	90	0	1	480	389	2	893
Belgo-Luxemb. E. U.	21	115	1,159	804	129	263	5,346	5,545	573	9,503
Estonia	0	0	0	13	0	0	4	13	0	94
Finland	0	0	0	0	0	0	0	1	0	2
France	6	0	66	326	10	2	691	1,021	6	1,946
Greece . . . . .	...	...	...	...	3) 0	3) 0	3) 2	3) 0	0	35
Ireland	0	2	180	0	0	14	242	125	14	384
Italy	3	0	138	188	11	3	271	397	7	1,007
Norway	0	0	24	18	0	0	179	186	0	281
Netherlands	136	46	258	559	549	543	2,378	2,786	677	5,504
United Kingdom	0	0	1,352	1,870	2	4	11,267	11,770	7	22,185
Switzerland	0	0	236	507	0	0	1,587	1,561	0	3,228
Burma	—	—	0	0	—	—	2	2	—	5
Ceylon	—	—	1	1	—	—	6	3	—	7
Chosen . . . . .	...	...	...	...	1) 0	1) 19	1) 0	1) 0	23	4
Indochina . . . . .	...	...	...	...	2) 0	2) 0	2) 0	2) 0	0	0
Japan . . . . .	—	—	...	...	—	—	2) 0	2) 20	—	54
Palestine . . . . .	...	...	...	...	1) 6	1) 57	1) 126	1) 43	58	144
Tunisia	0	72	2	1	2	546	125	9	829	17
New Zealand . . . . .	...	...	...	...	1) 0	1) 0	1) 8	1) 4	0	288
Totals	3,449	3,570	4,556	5,005	25,564	25,615	27,904	26,853	56,756	55,380

1) Up to 30 November. — 2) Up to 31 October. — 3) Up to 30 September. — 4) Up to 31 August. — 5) From 1 April 1938 not including trade between Germany and Austria.

COUNTRIES	DECEMBER				FIVE MONTHS (August 1-December 31)				TWELVE MONTHS (August 1-July 31)	
	EXPORTS		IMPORTS		EXPORTS		IMPORTS		EXPORTS	IMPORTS
	1938	1937	1938	1937	1938	1937	1938	1937	1937-38	1937-38
Oats. — Thousand centals (1 cental = 100 lb.).										
<i>Exporting Countries:</i>										
Bulgaria	0	2	0	0	0	2	0	0	2	0
Hungary	0	0	0	0	0	0	0	0	0	0
Lithuania	121	0	0	0	224	0	0	0	17	0
Poland-Danzig . . .	43	0	0	0	43	0	0	0	186	0
Romania	0	0	0	0	0	6	0	0	6	0
Czecho-Slovakia . .	111	275	0	0	121	326	0	1	864	3
Yugoslavia	0	4	0	0	0	112	0	0	114	1
U. S. S. R. . . . .	...	...	...	...	3) 10	3) 5	0 3)	0 3)	61	0
Canada	358	142	0	82	1,399	682	782	1,854	1,624	4,014
United States . . .	16	455	0	1	1,058	2,130	1	1	3,797	3
Argentina	398	914	—	—	1,963	2,617	—	—	9,065	—
Chile . . . . .	...	...	...	...	3) 114	3) 127	0 3)	0 3)	1,177	0
Chosen . . . . .	..	...	...	...	1) 0	1) 2	0 1)	0 1)	118	2
India: by sea . . .	2	1	—	—	11	9	—	—	22	—
French Morocco . .	43	9	0	1	327	120	0	3	440	3
Tunisia	9	26	0	0	65	209	0	0	302	0
Union of South Afr.	...	...	...	...	1) 1	1) 7	0 1)	0 1)	11	0
Australia	2	12	0	0	15	35	0	1	86	2
New Zealand . . .	...	...	...	...	1) 0	1) 1	2 1)	9	2	14
<i>Importing Countries:</i>										
Germany 4)	0	0	154	6	0	0	1,126	290	0	3,314
Austria 4)	0	0	4	27	0	0	205	164	1	417
Belgo-Luxemb. E. U.	0	0	28	56	1	1	119	188	2	1,124
Denmark	39	18	4	26	79	124	99	147	223	1,114
Estonia	0	0	0	0	0	0	0	0	0	73
Finland	0	0	0	0	0	0	20	49	0	144
France	0	2	17	10	6	4	132	288	7	493
Greece . . . . .	...	...	...	...	3) 0	3) 0	0 3)	0 3)	0	22
Ireland	0	0	0	0	3	0	0	0	30	0
Italy	0	0	19	25	5	20	25	159	65	372
Latvia	1	0	0	0	1	0	0	0	0	0
Norway	0	0	0	0	0	0	0	0	0	9
Netherlands . . .	75	154	50	160	107	317	410	441	784	1,524
United Kingdom . .	2	2	150	102	4	14	893	473	28	1,324
Sweden	0	0	0	13	0	1	26	160	38	386
Switzerland	0	0	284	476	0	0	1,415	1,597	0	4,678
Uruguay . . . . .	...	...	..	...	2) 0	2) 15	0 2)	0 2)	15	0
Ceylon	—	—	2	1	—	—	7	6	—	15
Indochina . . . . .	...	...	...	...	2) 0	2) 0	0 2)	0 2)	1	0
Japan . . . . .	—	—	...	...	—	—	2) 0	2) 0	—	1
Syria and Lebanon.	0	0	0	0	2	9	2	0	9	1
Algeria	6	1	43	32	10	3	367	257	16	473
Egypt . . . . .	—	—	...	...	—	—	1) 0	1) 0	—	0
Totals	1,226	2,017	755	1,019	5,569	6,898	5,631	6,089	19,112	19,528

1) Up to 30 November. — 2) Up to 31 October. — 3) Up to 30 September. — 4) From 1 April 1938 not including trade between Germany and Austria.

COUNTRIES	DECEMBER				TWO MONTHS (November 1-December 31)				TWELVE MONTHS (Nov. 1-Oct. 31)	
	EXPORTS		IMPORTS		EXPORTS		IMPORTS		EXPORTS	IMPORTS
	1938	1937	1938	1937	1938	1937	1938	1937	1937-38	1937-38
Maize. — Thousand centals (1 cental = 100 lb.).										
<i>Exporting Countries:</i>										
Bulgaria	0	79	0	0	0	102	0	0	1,394	0
Hungary	0	920	0	0	0	1,566	0	0	4,223	226
Romania	1,739	35	0	0	3,183	95	0	0	2,787	0
Yugoslavia	188	1,907	0	0	289	3,824	0	0	13,850	0
U. S. S. R.	2,067	2,163	25	85	5,428	3,122	45	184	80,178	371
United States	38	28	—	—	69	54	—	—	264	—
Haiti	5,355	7,229	—	—	12,474	20,373	—	—	66,057	—
Dominican Republic	—	—	—	—	—	—	—	—	2,629	—
Argentina	—	—	—	—	—	—	—	—	276	—
Brazil	9	6	—	—	13	9	—	—	0	—
Burma	—	—	—	—	15	0	—	—	0	—
China	0	0	—	—	0	0	—	—	2	—
India: by sea 4)	—	—	—	—	—	—	—	—	—	—
Netherlands Indies:	—	—	—	—	—	—	—	—	—	—
Java and Madura	57	27	—	—	66	38	—	—	1,209	—
Outer Provinces	—	—	—	—	43	52	—	—	1,022	—
Indochina	1,337	1,826	—	—	2,880	3,163	—	—	12,554	—
Iraq	—	—	—	—	—	—	—	—	20	—
Manchukuo	—	—	—	—	—	—	—	—	4,911	—
Syria and Lebanon	4	9	0	0	4	9	0	0	18	1
Turkey	—	—	—	—	0	1	0	0	23	0
Egypt	—	—	—	—	1	0	0	0	7	114
Madagascar	—	—	—	—	8	9	0	0	1,180	0
French Morocco	0	0	0	30	0	0	0	30	0	479
Union of South Afr.	—	—	—	—	707	1,768	2	0	6,593	9
<i>Importing Countries:</i>										
Germany 4)	0	0	767	5,496	0	0	2,393	14,029	0	53,440
Austria 4)	0	0	815	596	0	0	1,261	1,195	0	6,746
Belgo Luxemb. E. U.	44	22	1,003	1,781	89	58	2,060	3,383	639	14,891
Denmark	0	0	90	1,244	1	4	209	1,776	253	8,396
Spain	—	—	—	—	—	—	—	—	—	—
Estonia	0	0	0	0	0	0	0	0	0	62
Finland	0	0	244	169	0	0	503	339	0	1,497
France	2	1	1,649	2,476	2	4	3,617	4,836	14	16,803
Greece	—	—	—	—	—	—	—	—	2	924
Ireland	0	0	752	301	0	0	1,478	1,135	0	7,616
Italy	4	0	149	134	4	0	264	188	2	1,137
Latvia	0	0	0	0	0	0	0	0	0	0
Norway	0	0	225	289	0	0	413	681	5	3,536
Netherlands	0	0	1,446	1,881	0	0	3,127	3,999	8	21,062
Poland-Danzig	0	0	0	33	0	0	0	41	0	60
Portugal	—	—	—	—	—	—	—	—	—	—
United Kingdom	1,1	154	5,165	9,028	468	392	11,540	17,581	2,790	71,039
Sweden	0	0	59	323	0	0	140	499	0	4,166
Switzerland	0	0	297	299	0	0	442	455	0	2,350
Czecho-Slovakia	0	0	315	144	0	0	390	205	198	1,072
Canada	0	0	1,070	355	0	0	1,844	1,404	2	3,811
Peru	—	—	—	—	—	—	—	—	2	3
Chosen	—	—	—	—	3	1	0	0	102	22
Japan	—	—	—	—	—	—	—	—	—	5,451
Palestine	—	—	—	—	—	—	—	—	—	127
Algeria	0	0	11	6	0	3	16	5	29	41
Tunisia	0	0	18	136	0	0	76	13	8	222
Australia	0	0	0	0	0	0	133	137	0	27
New Zealand	0	0	—	—	0	0	0	0	0	2
Totals	11,015	14,406	14,100	24,806	25,747	34,648	30,161	52,229	203,412	226,926

1) Up to 30 November — 2) Up to 30 September. — 3) Up to 31 August. — 4) From 1 April 1938 not including trade between Germany and Austria.

COUNTRIES	DECEMBER				TWELVE MONTHS (January 1-December 31)				TWELVE MONTHS (January 1-Dec. 31)	
	EXPORTS		IMPORTS		EXPORTS		IMPORTS		EXPORTS	IMPORTS
	1938	1937	1938	1937	1938	1937	1938	1937	1937	1937
Rice. — Thousand centals (1 cental = 100 lb.).										
<i>Exporting Countries:</i>										
Spain	—	—	—	—	—	—	—	—	—	—
Italy	530	671	—	4	3,496	3,510	5	20	—	—
United States	302	367	0	60	3,232	2,066	581	1,873	—	—
Brazil	—	—	—	—	937	559	—	—	690	—
Burma	3,433	2,792	2	2	63,090	43,848	27	21	—	—
of which trade with										
India	(2,216)	(1,470)	—	—	(32,162)	(19,730)	—	—	—	—
Chosen	—	—	—	—	917	101	0	1	139	1
Taiwan	—	—	—	—	217	2	0	0	2	0
Indochina	1,119	2,522	—	—	22,329	31,195	207	38	—	48
Iraq	—	—	—	—	87	6	0	0	7	1
Iran	—	—	—	—	705	851	11	2	851	2
Siam	1,970	2,064	—	—	31,888	20,989	—	—	—	—
Egypt	—	—	—	—	959	3,060	201	2	3,324	3
Australia	24	37	2	2	280	520	27	80	—	—
<i>Importing Countries:</i>										
Germany 6)	37	57	654	389	528	596	6,077	4,862	—	—
Austria 6)	0	0	4	159	0	0	474	793	—	—
Belgo-Luxemb. E. U.	21	20	108	129	328	548	1,565	1,769	—	—
Denmark	0	0	33	25	3	3	320	149	—	—
Estonia	—	—	1	2	—	—	24	25	—	—
Finland	—	—	1	27	—	—	297	338	—	—
France	58	27	335	1,768	381	696	13,252	16,710	—	—
Greece	—	—	—	—	0	0	502	541	0	674
Hungary	0	0	91	175	0	0	397	515	—	—
Ireland	0	0	13	7	0	0	77	72	—	—
Latvia	0	0	2	2	0	0	22	22	—	—
Lithuania	0	0	2	0	0	0	13	11	—	—
Norway	0	0	10	6	0	1	100	120	—	—
Netherlands	213	248	113	149	2,059	3,002	3,800	5,128	—	—
Poland-Danzig	6	13	0	10	129	103	1,064	1,052	—	—
Portugal	—	—	—	—	1	1	60	80	0	82
Romania	—	—	—	—	—	—	346	337	—	536
United Kingdom	14	11	198	134	98	162	3,013	2,588	—	—
Sweden	—	—	17	22	—	—	263	309	—	—
Switzerland	0	0	43	57	0	0	505	397	—	—
Czecho-Slovakia	0	0	139	174	0	0	1,052	1,320	—	—
Yugoslavia	0	0	82	62	0	3	497	507	—	—
U. S. S. R.	—	—	—	—	24	16	881	758	17	789
Canada	0	0	26	39	7	34	592	766	—	—
Haiti	—	—	—	—	—	—	17	30	—	32
Chile	—	—	—	—	—	—	202	310	—	392
Colombia	—	—	—	—	—	—	217	188	—	256
Peru	—	—	—	—	0	0	519	224	0	244
Ceylon	0	0	706	802	2	2	11,922	11,692	—	—
China	—	—	—	—	9	472	8,825	6,912	472	7,622
India: by sea 7)	415	328	1,383	1,486	5,923	15,543	24,295	20,914	—	—
of which trade with										
Burma	—	—	(1,381)	(1,486)	—	—	(24,288)	(20,846)	—	—
India: by land 7)	—	—	—	—	351	358	1,330	1,294	485	1,580
Netherlands Indies:										
Java and Madura	9	21	—	—	176	378	496	34	—	189
Outer Provinces	—	—	—	—	168	247	6,141	3,115	259	3,702
Japan	—	—	—	—	110	150	368	649	219	738
British Malaya	—	—	—	—	3,691	2,277	15,889	13,334	3,106	16,073
Manchukuo	—	—	—	—	291	40	643	1,434	76	1,598
Palestine	—	—	—	—	101	103	438	414	105	443
Syria and Lebanon	1	0	48	34	1	0	384	415	—	—
Turkey	—	—	—	—	—	—	0	0	—	0
Algeria	34	3	192	77	65	59	1,089	838	—	—
Madagascar	—	—	—	—	233	72	0	15	88	15
French Morocco	—	—	8	51	—	—	236	621	—	—
Tunisia	0	0	1	26	1	0	502	468	—	—
Union of South Afr.	—	—	—	—	0	0	1,206	1,287	0	1,410
New Zealand	—	—	—	—	0	0	61	69	1	73
Totals	8,186	9,181	4,262	5,880	142,817	131,570	111,032	105,463	—	—

1) Up to 30 November. — 2) Up to 31 October. — 3) Up to 30 September. — 4) Up to 31 August. — 5) From 1 April 1937. — 6) From 1 April 1938 not including trade between Germany and Austria. — 7) From 1 April 1937, the Indian statistics include the trade of India with Burma, and exclude the direct trade of Burma with foreign countries.

COUNTRIES	DECEMBER				TWELVE MONTHS (January 1-December 31)				TWELVE MONTHS (January 1-Dec. 31)	
	EXPORTS		IMPORTS		EXPORTS		IMPORTS		EXPORTS	IMPORTS
	1938	1937	1938	1937	1938	1937	1938	1937	1937	1937
Linseed. — Thousand centals (1 cental = 100 lb.).										
<i>Exporting Countries:</i>										
Latvia	17	28	8	8	74	82	18	41	—	—
Lithuania	60	59	0	0	125	456	0	0	—	—
Romania . . . . .	...	...	...	...	3) 0	3) 4	3) 5	3) 0	7	1
Argentina	3,826	3,200	—	—	27,702	39,729	—	—	—	—
Uruguay . . . . .	...	...	—	—	2) 1,330	2) 1,512	—	—	1,629	—
China . . . . .	...	...	—	—	1) 160	1) 265	—	—	269	—
India: by sea 5) . .	405	116	0	0	6,397	4,867	1	0	—	—
: by land 5) . .	—	—	...	...	—	—	3) 257	3) 217	—	244
Iraq . . . . .	...	...	—	—	2) 59	2) 49	—	—	51	—
Egypt . . . . .	...	...	...	...	1) 2	1) 14	1) 6	1) 1	17	1
French Morocco . .	5	13	—	—	127	242	—	—	—	—
Tunisia	0	0	0	0	0	2	0	1	—	—
New Zealand . . . .	...	...	...	...	1) 0	1) 7	1) 0	1) 0	7	0
<i>Importing Countries:</i>										
Germany 6)	0	0	331	364	0	0	3,418	3,976	—	—
Austria 6)	0	0	0	3	0	0	4	14	—	—
Belgo-Luxemb. E. U.	6	7	233	182	93	82	1,889	2,301	—	—
Denmark	—	—	24	40	—	—	372	501	—	—
Spain	—	—	—	—	—	—	—	—	—	—
Estonia	0	0	0	0	5	13	0	0	—	—
Finland	0	0	12	14	0	0	177	162	—	—
France	0	0	215	397	2	2	4,480	6,041	—	—
Greece . . . . .	...	...	...	...	3) 0	3) 0	3) 49	3) 84	0	117
Hungary	0	0	0	0	0	1	65	19	—	—
Ireland	0	0	11	11	0	0	139	110	—	—
Italy	0	0	54	144	0	0	1,160	1,783	—	—
Norway	0	0	32	6	0	0	463	534	—	—
Netherlands	13	20	452	770	124	132	6,572	7,068	—	—
Poland-Danzig . . .	0	0	0	0	0	0	0	0	—	—
United Kingdom . .	0	0	297	314	0	0	7,446	6,428	—	—
Sweden	—	—	42	103	—	—	1,074	1,166	—	—
Czecho-Slovakia . .	0	0	22	39	0	0	385	603	—	—
Yugoslavia	0	0	25	11	0	0	216	200	—	—
Canada	1	3	6	22	7	7	399	678	—	—
United States . . .	—	—	826	936	—	—	8,604	15,698	—	—
Burma	0	0	0	0	0 4)	0	0 4)	0	—	—
Japan . . . . .	...	...	...	...	2) 2	2) 0	2) 171	2) 145	0	178
Palestine . . . . .	—	—	...	...	—	—	1) 14	1) 24	—	25
Algeria	0	0	0	0	0	1	1	29	—	—
Australia	0	0	22	11	0	0	725	787	—	—
Totals	4,333	3,446	2,612	3,375	36,209	47,467	38,110	48,611	—	—

1) Up to 30 November. — 2) Up to 31 October. — 3) Up to 30 September. — 4) From 1 April 1937. — 5) From 1 April 1937, the Indian statistics include the trade of India with Burma, and exclude the direct trade of Burma with foreign countries. — 6) From 1 April 1938 not including trade between Germany and Austria.

COUNTRIES	DECEMBER				FIVE MONTHS (August 1-December 31)				TWELVE MONTHS (August 1-July 31)	
	EXPORTS		IMPORTS		EXPORTS		IMPORTS		EXPORTS	IMPORTS
	1938	1937	1938	1937	1938	1937	1938	1937	1937-38	1937-38
Cotton. — Thousand centals (1 cental = 100 lb.).										
<i>Exporting Countries:</i>										
United States . . .	1,538	4,035	55	43	10,084	17,079	326	200	29,884	795
Haiti . . .	...	...	—	—	2	9	—	—	105	—
Dominican Republic . . .	0	0	—	—	1	0	—	—	3	—
Argentina . . .	19	0	—	—	329	70	—	—	234	—
Brazil . . .	...	...	—	—	1,249	972	—	—	5,481	—
Peru . . .	...	...	—	—	585	673	—	—	1,489	—
Burma . . .	34	46	0	0	147	162	0	0	436	0
China . . .	...	...	—	—	994	72	119	37	1,955	181
India: by sea . . .	1,065	448	86	307	3,910	1,904	608	856	8,252	3,132
Netherlands Indies:										
Java and Madura . . .	3	1	—	—	5	6	—	—	11	—
Outer provinces . . .	...	...	—	—	4	10	—	—	49	—
Iraq . . .	...	...	—	—	16	20	1	1	85	5
Iran . . .	...	...	—	—	49	75	0	0	415	0
Syria and Lebanon . . .	0	5	0	0	8	17	0	0	53	0
Turkey . . .	...	...	—	—	210	82	—	—	479	—
Egypt . . .	...	...	—	—	2,422	2,986	—	—	8,567	—
French Morocco . . .	0	0	0	0	0	0	0	0	0	1
<i>Importing Countries:</i>										
Germany 5) . . .	0	0	417	760	0	0	2,769	3,081	0	6,914
Austria 5) . . .	0	0	80	80	0	0	380	363	0	832
Belgo-Luxemb. E. U. . .	67	86	223	300	356	351	1,037	1,034	841	2,714
Bulgaria . . .	0	0	28	17	0	0	116	110	0	258
Denmark . . .	—	—	17	15	—	—	78	77	—	190
Spain . . .	—	—	—	—	—	—	—	—	—	—
Estonia . . .	0	0	13	11	0	0	61	65	0	133
Finland . . .	0	0	75	77	0	1	172	185	1	324
France . . .	26	36	655	820	131	147	2,630	2,740	386	6,273
Greece . . .	...	...	—	—	0	0	6	11	0	66
Hungary . . .	0	0	64	59	0	0	263	210	0	500
Italy . . .	0	0	292	363	0	0	1,306	1,554	0	3,710
Latvia . . .	0	0	7	7	0	0	38	39	0	106
Lithuania . . .	0	0	3	5	0	0	21	24	0	55
Norway . . .	0	0	15	15	0	0	46	40	0	67
Netherlands . . .	2	1	99	176	6	3	515	539	13	1,198
Poland - Danzig . . .	0	0	123	146	1	1	719	758	2	1,772
Portugal . . .	—	—	—	—	—	—	109	113	—	645
Romania . . .	...	...	—	—	0	0	73	47	0	440
United Kingdom . . .	31	44	970	2,062	205	238	4,427	7,596	499	15,294
Sweden . . .	—	—	174	93	—	—	405	306	—	711
Switzerland . . .	0	0	63	93	0	2	241	332	3	718
Czecho-Slovakia . . .	0	3	124	223	6	22	512	935	45	1,982
Yugoslavia . . .	0	0	59	56	0	1	246	234	1	482
U. S. S. R. . . .	...	...	—	—	0	211	2	52	420	501
Canada . . .	—	—	99	138	—	—	636	679	—	1,400
Colombia . . .	—	—	—	—	—	—	13	13	—	91
Ceylon . . .	0	0	0	2	0	0	7	7	0	20
Chosen . . .	...	...	—	—	0	0	85	9	0	414
Taiwan . . .	—	—	—	—	—	—	0	0	—	3
Indochina . . .	...	...	—	—	2	4	18	20	8	219
Japan . . .	...	...	—	—	0	90	3,193	2,514	106	10,028
Manchukuo . . .	...	...	—	—	0	0	68	47	0	788
Palestine . . .	...	...	—	—	0	0	4	5	0	15
Algeria . . .	0	0	1	0	0	0	2	2	5	6
Union of South Afr. . .	...	...	—	—	3	4	5	11	5	28
Australia . . .	0	0	7	4	0	0	59	76	0	151
Totals . . .	3,185	4,705	3,749	5,877	20,726	25,212	21,367		59,833	63,662

1) Up to 30 November. — 2) Up to 31 October. — 3) Up to 30 September. — 4) Up to 31 August. — 5) From 1 April 1938 not including trade between Germany and Austria.

COUNTRIES	DECEMBER				FOUR MONTHS (September 1-December 31)				TWELVE MONTHS (Sept. 1-Aug. 31)	
	EXPORTS		IMPORTS		EXPORTS		IMPORTS		EXPORTS	IMPORTS
	1938	1937	1938	1937	1938	1937	1938	1937	1937-38	1937-38
Wool. — Thousand lb.										
<i>Exporting Countries:</i>										
Ireland	1,056	470	93	53	5,558	2,588	276	262	9,370	734
Argentina	40,451	17,201	—	—	87,702	33,277	—	—	231,771	—
Peru	5,102	4,070	—	—	19,694	12,009	—	—	39,921	—
Chile . . . . .	...	...	...	...	163	49	86	0	20,946	917
Uruguay . . . . .	...	...	—	—	1,671	1,916	—	—	11,830	—
Butma	24	26	0	0	11,693	3,721	—	—	83,095	—
China . . . . .	...	...	—	—	2,824	425	—	—	10,121	—
India by sea	9,270	1,413	450	322	84	77	0	0	148	2
India by land	—	—	—	—	3,845	3,854	—	—	8,735	—
Iraq . . . . .	...	...	...	...	29,983	14,158	2,000	1,623	40,528	8,049
Iran . . . . .	...	...	...	...	—	—	1,153	966	0	10,856
Manchukuo . . . . .	...	...	...	...	3,669	2,317	4	13	6,041	637
Palestine . . . . .	...	...	...	...	714	1,332	—	—	6,074	—
Syria and Lebanon	71	97	42	95	...	...	...	...	6,171	697
Turkey . . . . .	...	...	—	—	26	77	11	29	203	97
Algeria	2,366	2,352	190	20	2,317	3,452	176	146	4,941	192
Egypt . . . . .	...	...	...	...	7,366	4,945	849	395	12,097	—
French Morocco	787	443	0	0	6,691	6,828	—	—	21,828	1,321
Tunisia	251	141	7	42	1,373	1,030	110	9	2,491	104
Un. of S. Africa . . . . .	...	...	...	...	3,847	3,036	9	9	15,761	60
Australia	109,608	87,879	2,068	304	820	1,160	35	527	2,288	1,016
New Zealand	6,438	4,996	9	7	60,407	47,413	425	7	210,461	2,066
	24,205	13,960	...	...	1,292	1,091	368	...	6,989	...
	1,631	831	...	...	366,293	309,365	3,305	906	732,887	13,481
	...	...	...	...	24,791	19,055	132	13	54,545	403
	...	...	...	...	33,069	20,642	22	24	212,471	57
	...	...	...	...	10,155	5,395	4	2	41,731	2
<i>Importing Countries:</i>										
Germany 4)	2	0	16,319	15,210	4	4	41,266	46,028	7	279,904
Austria 4)	0	2	3,225	2,943	0	90	11,682	11,488	123	30,713
Belgo-Luxemb. 4)	0	2	1,993	2,390	31	44	6,164	3,885	64	19,191
Econ. Un.	4,980	4,938	26,943	18,140	15,285	17,525	55,200	48,032	49,520	204,327
Bulgaria	2,798	1,967	507	509	10,670	8,084	1,676	1,612	25,792	5,249
Denmark	0	0	132	108	0	0	353	291	0	1,409
Spain	68	90	377	249	414	265	2,489	1,490	562	6,477
Estonia	—	—	—	—	—	—	—	—	—	—
Finland	0	0	37	15	0	0	256	181	0	604
France	0	35	505	390	24	95	2,088	1,819	143	5,578
Greece	6,455	4,363	51,271	36,266	19,348	18,071	107,650	84,764	47,724	367,003
Hungary . . . . .	...	...	...	...	93	322	381	423	1,733	5,706
Italy	51	15	333	84	150	187	767	205	408	1,237
Latvia	33	55	5,589	4,711	82	93	23,371	21,308	110	69,810
Lithuania	35	62	344	260	551	205	1,519	1,515	1,021	4,193
Norway	0	0	123	185	0	0	635	800	0	1,940
Netherlands	0	0	106	37	0	0	346	353	0	883
Poland - Dantzig	198	161	174	165	617	611	957	747	1,605	1,806
Portugal	108	256	556	289	366	1,063	2,888	1,045	2,174	7,253
Romania	35	26	776	445	99	148	3,699	1,534	516	7,606
United Kingdom	0	0	3,146	3,201	0	49	15,393	9,383	57	44,066
Sweden . . . . .	...	...	...	...	170	591	359	240	957	2,961
Switzerland . . . . .	...	...	...	...	18	30	115	328	273	1,898
Czechoslovakia	28,951	22,712	82,993	65,420	79,133	59,880	233,528	191,259	280,982	843,721
Yugoslavia . . . . .	...	...	...	...	761	8,755	5,359	—	—	17,163
U. S. S. R.	33	24	1,640	1,056	66	73	4,486	2,449	249	13,373
Canada	207	13	1,601	1,989	236	293	4,658	5,174	626	30,675
United States	11	9	1,453	271	220	977	4,394	1,539	1,380	7,639
Japan . . . . .	...	...	...	...	0	0	3,245	3,880	0	53,101
	...	...	...	...	0	0	763	1,023	0	13,907
	260	146	818	348	1,296	1,466	4,072	3,710	4,431	15,161
	42	4	18,162	6,045	146	40	62,118	47,303	1,237	89,748
Totals	245,527	168,759	223,426	162,330	815,066	609,412	628,976	507,710	2,213,142	2,297,743

a) Wool, greasy. — b) Wool, scoured.

1) Up to 30 November. — 2) Up to 31 October. — 3) Up to 30 September. — 4) From 1 April 1938 not including trade between Germany and Austria.

COUNTRIES	DECEMBER				TWELVE MONTHS (January 1-December 31)				TWELVE MONTHS (January 1-Dec. 31)	
	EXPORTS		IMPORTS		EXPORTS		IMPORTS		EXPORTS	IMPORTS
	1938	1937	1938	1937	1938	1937	1938	1937	1937	1937
Butter. — Thousand lb.										
<i>Exporting Countries:</i>										
Bulgaria	7	0	0	0	53	31	0	0	—	—
Denmark	26,323	28,407	—	—	348,433	337,304	—	—	—	—
Estonia	1,706	1,574	0	0	32,479	29,057	0	0	—	—
Finland	2,057	1,680	0	0	37,763	30,733	0	0	—	—
France	602	452	84	108	6,442	6,629	1,340	1,495	—	—
Hungary	273	745	0	0	7,760	13,122	0	0	—	—
Ireland	690	820	0	0	42,278	42,552	644	1,464	—	—
Latvia	2,820	3,164	0	0	51,460	42,353	0	0	—	—
Lithuania	1,484	1,669	0	0	38,387	33,197	0	0	—	—
Norway	40	82	0	0	1,797	443	0	0	—	—
Netherlands	6,109	7,657	0	33	112,141	118,629	7	99	—	—
Poland-Danzig	626	1,592	0	0	29,086	17,877	0	0	—	—
Romania	—	—	—	—	251	148	0	31	214	31
Sweden	2,789	3,501	0	0	61,522	51,886	2	2	—	—
Czecho-Slovakia	4	225	712	0	1,773	1,587	2,222	1,676	—	—
Yugoslavia	13	2	—	—	196	225	—	—	—	—
U. S. S. R.	—	—	—	—	351	28,598	3)	611	3)	51
Argentina	3,007	2,582	—	—	16,156	19,361	—	—	—	—
Canada	185	82	0	7	3,821	4,096	5,232	66	—	—
Chile	—	—	—	—	0	0	0	0	11	0
Syria and Lebanon	95	44	13	9	1,089	362	64	170	—	—
Turkey	—	—	—	—	4	9	—	—	9	—
Union of South Afr.	—	—	—	—	3,093	7,180	1)	1,693	7,205	1,806
Australia	31,257	22,787	0	0	229,407	182,916	0	0	—	—
New Zealand	18,093	31,021	—	—	292,832	343,325	1)	7	343,325	0
<i>Importing Countries:</i>										
Germany 5)	0	0	16,118	18,021	0	0	204,318	191,439	—	—
Austria 5)	0	531	159	0	2,606	7,637	165	11	—	—
Belgo-Luxemb. E. U.	9	4	721	776	51	44	2,540	4,969	—	—
Spain	—	—	—	—	—	—	—	—	—	—
Greece	—	—	—	—	—	—	3)	780	3)	529
Italy	139	68	51	88	1,883	1,523	463	5,115	—	688
Portugal	—	—	—	—	88	79	1)	26	95	26
United Kingdom	1,847	2,434	79,426	99,182	10,174	14,204	1,065,630	1,053,683	—	—
Switzerland	2	2	55	562	11	7	340	5,624	—	—
United States	159	60	73	509	1,960	800	1,623	11,111	—	—
Peru	—	—	—	—	194	95	2)	159	104	203
Burma	0	0	82	77	0	0	668	520	—	—
Ceylon	—	—	73	104	—	—	858	811	—	—
China	—	—	—	—	—	—	1)	487	1)	796
India: by sea 6)	77	538	86	82	5,463	4,908	966	899	—	825
: by land 6)	—	—	—	—	—	—	3)	4,969	3)	4,722
Netherlands Indies:	—	—	—	—	—	—	—	—	—	—
Java and Madura	—	—	—	—	—	—	1)	6,025	1)	6,892
Outer Provinces	—	—	—	—	—	—	1)	2,266	1)	2,544
Indochina	—	—	—	—	2	2	2)	626	2)	699
Iraq	—	—	—	—	0	9	2)	20	2)	18
Iran	—	—	—	—	20	0	1)	0	1)	0
Japan	—	—	—	—	326	13	2)	0	2)	556
British Malaya	—	—	—	—	505	518	2)	3,924	2)	3,613
Palestine	—	—	—	—	—	—	1)	4,184	1)	4,903
Algeria	0	0	384	306	11	15	4,332	4,114	—	—
Egypt	—	—	—	—	293	13	1)	1,248	1)	1,140
French Morocco	—	—	110	212	—	—	1)	1,953	1)	2,692
Tunisia	0	0	218	172	2	2	1,475	1,651	—	—
Totals	100,413	111,723	98,365	120,248	1,342,163	1,341,489	1,320,245	1,315,983	—	—

1) Up to 30 November. — 2) Up to 31 October. — 3) Up to 30 September. — 4) From 1 April 1937. — 5) From 1 April 1938 not including trade between Germany and Austria. — 6) From 1 April 1937, the Indian statistics include the trade of India with Burma, and exclude the direct trade of Burma with foreign countries.

COUNTRIES	DECEMBER				TWELVE MONTHS (January 1-December 31)				TWELVE MONTHS (Jan. 1-Dec. 31)	
	EXPORTS		IMPORTS		EXPORTS		IMPORTS		EXPORTS	IMPORTS
	1938	1937	1938	1937	1938	1937	1938	1937	1937	1937
Cheese. — Thousand lb.										
<i>Exporting Countries:</i>										
Bulgaria	236	192	0	0	3,660	3,027	0	0	—	—
Denmark	1,647	1,532	2	2	20,408	20,668	29	29	—	—
Estonia	115	86	0	0	507	613	2	2	—	—
Finland	1,470	1,188	7	4	14,930	14,575	35	33	—	—
Ireland	271	185	4	4	2,262	1,872	40	44	—	—
Italy	4,643	4,339	320	1,078	53,275	52,680	10,221	9,451	—	—
Latvia	62	4	0	0	309	201	0	0	—	—
Lithuania	223	225	0	0	2,004	919	4	2	—	—
Norway	362	128	55	44	3,642	3,708	518	428	—	—
Netherlands	9,614	11,098	68	64	128,953	138,045	692	811	—	—
Poland-Danzig	11	4	24	22	503	1,305	304	234	—	—
Romania . . . . .	...	...	...	...	97	44	42	33	49	71
Switzerland	3,314	3,766	390	461	49,262	38,852	3,404	3,552	—	—
Czecho-Slovakia	33	320	348	249	1,753	2,432	3,071	2,604	—	—
Yugoslavia	168	201	4	4	3,384	4,142	46	57	—	—
Canada	7,575	2,778	148	123	80,989	88,955	1,387	1,411	—	—
Argentina	481	260	...	...	4,381	3,267	93	117	—	128
Turkey . . . . .	...	...	...	...	42	29	—	—	29	—
Union of South Afr. . . . .	...	...	...	...	2,447	1,609	333	384	1,616	410
Australia	5,529	3,807	15	13	34,732	18,689	143	123	—	—
New Zealand	12,547	16,387	...	...	180,381	184,494	9	7	—	7
<i>Importing Countries:</i>										
Germany 5)	82	53	6,585	6,310	225	227	72,484	81,342	—	—
Austria 5)	37	1,129	126	168	3,534	10,532	1,726	2,015	—	—
Belgo-Luxemb. E. U.	31	24	3,902	4,052	280	368	53,363	49,983	—	—
Spain	—	—	—	—	—	—	—	—	—	—
France	2,820	2,277	2,458	2,937	26,508	24,747	31,304	29,363	—	—
Greece . . . . .	...	...	...	...	183	611	1,279	580	904	679
Hungary	79	205	0	2	787	977	2	2	—	—
Portugal . . . . .	...	...	...	...	134	137	190	198	154	269
United Kingdom	368	328	22,833	30,256	4,859	5,935	329,202	329,232	—	—
Sweden	—	—	417	280	—	—	2,687	2,405	—	—
U. S. S. R. . . . .	...	...	...	...	35	31	192	487	71	547
United States	132	90	4,083	4,733	1,482	1,155	54,432	60,652	—	—
Chile . . . . .	...	...	417	...	7	13	51	53	22	73
Peru . . . . .	—	—	...	...	—	—	697	675	—	767
Burma	—	—	7	9	—	—	90	66	—	—
Ceylon	—	—	20	20	—	—	243	227	—	—
India: by sea 6)	0	0	115	97	2	4	1,166	1,239	—	—
Netherlands Indies:										
Java and Madura . . . . .	—	—	...	...	—	—	1,845	1,726	—	1,892
Indochina . . . . .	...	...	...	...	2	2	481	564	2	675
Iraq . . . . .	...	...	...	...	11	13	44	42	13	60
Iran . . . . .	...	...	...	...	0	0	0	0	0	0
Japan . . . . .	...	...	...	...	—	—	11	141	—	150
British Malaya . . . . .	...	...	...	...	26	29	311	549	35	626
Palestine . . . . .	...	...	...	...	29	15	1,859	2,145	15	2,335
Syria and Lebanon	117	13	40	84	783	551	591	825	—	—
Algeria	2	0	1,105	902	35	44	12,432	11,261	—	—
Egypt . . . . .	...	...	...	...	84	57	6,967	6,625	66	7,225
French Morocco	—	—	397	267	—	—	3,444	3,591	—	—
Tunisia	2	2	262	331	62	49	2,683	2,844	—	—
Totals	51,971	50,621	43,735	52,516	626,989	625,623	600,149	608,161	—	—

1) Up to 30 November. — 2) Up to 31 October. — 3) Up to 30 September. — 4) From 1 April 1937. — 5) From 1 April 1938 not including trade between Germany and Austria. — 6) From 1 April 1937 the Indian statistics include the trade of India with Burma, and exclude the direct trade of Burma with foreign countries.

COUNTRIES	DECEMBER				THREE MONTHS (October 1-December 31)				TWELVE MONTHS (Oct. 1-Sept. 30)	
	EXPORTS		IMPORTS		EXPORTS		IMPORTS		EXPORTS	IMPORTS
	1938	1937	1938	1937	1938	1937	1938	1937	1937-38	1937-38
Cacao. — Thousand lb.										
<i>Exporting Countries:</i>										
Grenada . . . . .	...	...	—	—	1,299	1,191	—	—	9,209	—
Haiti . . . . .	...	...	—	—	7,659	7,388	—	—	3,452	—
Dominican Republic	3,523	3,975	—	—	—	—	—	—	62,265	—
Brazil . . . . .	...	...	—	—	5,626	4,486	—	—	282,120	—
Ecuador . . . . .	...	...	—	—	2,683	1,755	—	—	38,460	—
Trinidad . . . . .	...	...	—	—	1,984	2,692	—	—	42,102	—
Ceylon	703	992	—	—	—	—	—	—	8,836	—
Netherlands Indies:										
Java and Madura	392	227	—	—	906	911	—	—	3,415	—
Cameroun: Fr. m. t.	8,607	6,878	—	—	18,111	16,316	—	—	59,238	—
Ivory Coast	13,204	9,233	—	—	20,029	14,238	—	—	110,434	—
Gold Coast	89,898	26,026	—	—	142,373	78,741	—	—	513,000	—
Madagascar . . . . .	...	...	—	—	95	15	—	—	538	—
Nigeria and Came- roon	30,830	25,014	—	—	47,366	44,139	—	—	211,821	—
São Thomé and Prin- cipe Islands	6,532	2,017	—	—	8,830	5,745	—	—	24,978	—
Togo: Fr. m. t.	692	617	—	—	3,106	1,213	—	—	14,925	—
<i>Importing Countries:</i>										
Germany 3)	0	243	19,145	16,028	0	675	53,326	49,027	1,684	170,722
Austria 3)	—	—	3,413	1,250	—	—	6,700	3,144	—	14,376
Belgo-Luxemb. E. U.	0	0	2,000	3,086	0	9	6,288	6,120	130	24,529
Bulgaria	—	—	192	137	—	—	608	353	—	1,576
Denmark	7	0	959	494	11	0	2,196	1,464	9	11,050
Spain	—	—	—	—	—	—	—	—	—	—
Estonia	—	—	42	73	—	—	278	267	—	1,041
Finland	—	—	20	22	—	—	106	88	—	364
France	300	4	7,884	8,089	300	4	25,186	25,768	51	94,118
Greece	—	—	—	—	—	—	—	—	—	3,655
Hungary	—	—	1,043	633	—	—	3,027	1,735	—	9,330
Ireland	—	—	262	366	—	—	1,109	514	—	3,847
Italy	—	—	3,920	2,412	—	—	5,154	5,216	—	20,239
Latvia	—	—	99	157	—	—	633	505	—	1,713
Lithuania	—	—	86	—	—	—	410	351	—	1,332
Norway	0	0	306	1,111	0	0	1,515	1,933	0	8,730
Netherlands	231	562	11,480	13,162	1,021	1,759	37,562	32,602	5,379	164,540
Poland-Danzig	—	—	2,004	1,720	—	—	6,142	5,205	—	17,719
Portugal	—	—	—	—	1) 0	1) 0	207	161	2	1,096
Romania	—	—	—	—	—	—	—	—	—	3,607
United Kingdom	1,047	2,147	24,077	14,548	3,635	12,159	41,363	25,358	17,267	282,746
Sweden	—	—	1,246	1,111	—	—	4,661	3,190	—	14,070
Switzerland	26	123	1,444	666	44	134	3,428	1,640	262	18,503
Czechoslovakia	—	—	2,934	3,132	—	—	6,874	7,602	—	23,338
Yugoslavia	—	—	238	218	—	—	840	712	—	2,815
U. S. S. R.	—	—	—	—	—	—	—	—	—	32,558
Canada	—	—	2,019	992	—	—	5,994	4,209	—	21,830
United States	—	—	35,587	28,493	—	—	82,731	95,926	—	466,297
Argentina	—	—	—	—	—	—	1,477	2,269	—	12,877
Chile	—	—	—	—	—	—	—	—	—	1,982
Colombia	—	—	—	—	—	—	—	—	—	4,535
Peru	—	—	—	—	2) 0	2) 0	84	66	0	930
Uruguay	—	—	—	—	—	—	196	170	—	1,548
Iran	—	—	—	—	—	—	18	7	—	31
Japan	—	—	—	—	—	—	—	—	—	5,051
British Malaya	—	—	—	—	2) 7	2) 7	2	4	62	68
Palestine	—	—	—	—	—	—	126	132	—	822
Syria and Lebanon	—	—	0	0	—	—	0	0	—	7
Algeria	0	0	62	9	0	0	128	20	0	470
Egypt	—	—	—	—	—	—	298	115	—	796
French Morocco	—	—	0	40	—	—	42	55	—	95
Tunisia	—	—	2	0	—	—	4	0	—	4
Union of South Africa	—	—	—	—	—	—	238	148	—	3,968
Australia	0	0	71	154	0	0	284	710	7	17,315
New Zealand	—	—	—	—	—	—	518	328	—	5,512
Totals	155,992	78,058	120,517	98,159	265,085	193,577	299,753	277,114	1,409,646	1,471,752

1) Up to 30 November. — 2) Up to 31 October. — 3) From 1 April 1938 not including trade between Germany and Austria.

COUNTRIES	DECEMBER				SIX MONTHS (July 1-December 31)				TWELVE MONTHS (July 1-June 30)	
	EXPORTS		IMPORTS		EXPORTS		IMPORTS		EXPORTS	IMPORTS
	1938	1937	1938	1937	1938	1937	1938	1937	1937-38	1937-38
Tea. — Thousand lb										
<i>Exporting Countries:</i>										
Ceylon	18,155	18,801	0	0	108,322	103,911	0	0	231,823	0
China . . . . .	...	...	...	...	1) 56,405	1) 38,226	1) 1,737	1) 68	72,746	485
Chosen . . . . .	...	...	...	...	1) 112	1) 68	1) 0	1) 2	95	2
Taiwan . . . . .	...	...	...	...	2) 11,486	2) 12,148	2) 0	2) 53	21,239	53
India: by sea	38,632	32,108	730	300	266,804	261,112	2,097	2,491	346,797	3,316
" by land . . . . .	...	...	—	—	3) 3,503	3) 3,417	—	—	13,678	—
Netherlands Indies: . . . . .	...	...	...	...	...	...	...	...	...	...
Java and Madura	10,778	11,618	...	...	60,757	57,891	1) 267	1) 231	123,464	791
Outer Provinces . . . . .	...	...	—	—	1) 13,439	1) 12,873	—	—	31,445	—
Indochina . . . . .	...	...	...	...	2) 1,799	2) 1,841	2) 465	2) 560	4,350	1,382
Japan . . . . .	...	...	...	...	2) 16,204	2) 20,970	2) 51	2) 37	41,112	112
<i>Importing Countries:</i>										
Germany 5)	20	22	1,109	972	88	207	6,654	5,679	309	10,992
Austria 5)	—	—	161	82	—	—	668	465	—	730
Belgo-Luxemb. E.U.	0	0	53	37	0	2	302	284	7	635
Bulgaria	—	—	9	11	—	—	40	57	—	82
Denmark	—	—	77	35	—	—	741	461	—	1,263
Spain	—	—	—	—	—	—	—	—	—	—
Estonia	—	—	4	7	—	—	51	51	—	99
Finland	—	—	24	31	—	—	170	139	—	273
France	0	2	262	267	9	9	1,332	1,376	20	2,978
Greece . . . . .	—	—	...	...	—	—	3) 88	3) 53	—	313
Hungary	—	—	44	77	—	—	340	282	—	487
Ireland	0	88	1,488	1,700	26	836	12,119	14,299	897	24,784
Italy	—	—	33	22	—	—	97	128	—	311
Latvia	—	—	4	7	—	—	31	35	—	73
Lithuania	—	—	15	9	—	—	46	49	—	90
Norway	—	—	37	33	—	—	201	205	—	377
Netherlands	18	20	1,773	2,449	93	99	14,778	13,243	207	27,157
Poland-Danzig	0	0	320	291	0	0	1,931	1,821	2	3,810
Portugal . . . . .	—	—	...	...	—	—	1) 145	1) 174	—	377
Romania . . . . .	—	—	...	...	—	—	3) 53	3) 183	—	518
United Kingdom	4,870	4,650	51,992	60,541	30,865	34,749	320,672	320,387	69,977	526,336
Sweden	—	—	73	79	—	—	578	459	—	1,003
Switzerland	0	2	143	132	7	11	1,003	809	22	1,581
Czechoslovakia	—	—	101	117	—	—	721	721	—	1,204
Yugoslavia	—	—	55	37	—	—	289	278	—	443
U. S. S. R. . . . .	...	...	...	...	3) 289	3) 6,680	3) 9,405	3) 10,203	8,505	28,801
Canada . . . . .	...	...	3,126	2,908	—	—	18,821	20,188	—	38,960
United States . . . . .	...	...	7,602	8,979	—	—	43,017	47,483	—	85,839
Argentina . . . . .	—	—	...	...	—	—	1) 1,989	1) 1,916	—	4,142
Chile . . . . .	—	—	...	...	—	—	3) 1,312	3) 1,911	—	4,766
Peru . . . . .	—	—	...	...	—	—	2) 421	2) 505	—	1,501
Uruguay . . . . .	—	—	...	...	—	—	2) 183	2) 148	—	406
Burma	4	44	256	351	123	123	395	1,885	1,574	7,599
Iraq . . . . .	...	...	...	...	2) 55	2) 106	2) 2,350	2) 2,357	185	7,099
Iran . . . . .	...	...	...	...	...	...	1) 6,920	1) 5,997	—	17,749
British Malaya . . . . .	...	...	...	...	2) 463	2) 414	2) 1,739	2) 2,352	1,332	5,670
Mauchukuo . . . . .	...	...	...	...	...	...	4) 4,098	4) 3,402	—	12,174
Palestine . . . . .	...	...	...	...	1) 0	1) 0	1) 223	1) 276	2	686
Syria and Lebanon	0	0	77	75	0	0	258	196	2	340
Turkey . . . . .	...	...	...	...	—	—	1) 816	1) 765	—	2,161
Algeria	0	0	218	322	2	2	1,872	1,839	4	3,827
Egypt . . . . .	...	...	...	...	—	—	1) 6,574	1) 6,032	—	16,590
French Morocco	0	68	1,334	3,080	487	154	11,462	10,468	833	19,178
Tunisia . . . . .	...	...	465	306	...	...	2,423	2,392	—	4,594
Union of South Afr. . . . .	...	...	...	...	1) 168	1) 132	1) 7,233	1) 6,662	472	15,516
Australia	37	44	3,534	3,360	273	256	26,144	22,511	454	45,179
New Zealand . . . . .	...	...	...	...	1) 82	1) 66	1) 4,694	1) 4,032	139	12,214
Totals	72,514	67,467	75,119	86,617	571,861	558,551	520,016	518,966	971,692	947,048

1) Up to 30 November. — 2) Up to 31 October. — 3) Up to 30 September. — 4) Up to 31 August. — 5) From 1 April 1938 not including trade between Germany and Austria.

COUNTRIES	DECEMBER				SIX MONTHS (July 1-December 31)				TWELVE MONTHS (July 1-June 30)	
	EXPORTS		IMPORTS		EXPORTS		IMPORTS		EXPORTS	IMPORTS
	1938	1937	1938	1937	1938	1937	1938	1937	1937-38	1937-38
Coffee. — Thousand lb.										
<i>Exporting Countries:</i>										
Costa-Rica . . . . .	...	...	—	—	1) 4,458	1) 7,176	—	—	56,006	—
Guadeloupe . . . . .	...	...	—	—	2) 46	2) 130	—	—	836	—
Jamaica	432	567	—	—	1) 4,226	3,060	—	—	8,371	—
Haiti . . . . .	...	...	—	—	1) 18,188	1) 14,405	—	—	50,341	—
Mexico . . . . .	...	...	—	—	4) 6,499	4) 4,888	—	—	71,792	—
Nicaragua . . . . .	...	...	—	—	2) 3,878	2) 1,634	—	—	30,905	—
Dominican Republic	2,297	2,487	—	—	7,670	8,378	—	—	19,213	—
Salvador . . . . .	...	...	—	—	2) 15,210	2) 19,136	—	—	116,843	—
Brazil	184,973	191,139	—	—	1,120,823	782,917	—	—	1,933,410	—
Colombia	46,030	30,156	—	—	283,083	251,773	—	—	531,757	—
British Guiana . . . . .	...	...	—	—	3) 18	3) 108	—	—	227	—
Dutch Guiana . . . . .	...	...	—	—	3) 1,380	3) 1,182	—	—	5,655	9
Peru . . . . .	...	...	—	—	2) 2,485	2) 3,089	2) 2	2) 2	5,481	—
Aden: by sea . . . . .	...	...	—	—	2) 3,790	2) 2,050	—	—	7,200	7
India: by sea	655	631	0	0	3,109	3,834	2	7	16,405	—
Netherlands Indies:										
Java and Madura	2,956	6,310	—	—	29,606	50,984	—	—	71,547	—
Outer Provinces . . . . .	...	...	—	—	1) 59,362	1) 78,831	—	—	118,953	—
Indochina	262	2	...	...	514	152	2) 24	2) 36	811	141
Angola . . . . .	...	...	—	—	2) 14,301	2) 14,279	—	—	30,830	—
Belgian Congo . . . . .	...	...	—	—	2) 13,177	2) 10,719	—	—	38,766	—
Ivory Coast . . . . .	...	...	—	—	2) 8,098	2) 9,751	—	—	29,798	—
Kenya . . . . .	...	...	—	—	4) 1,733	4) 2,028	—	—	36,156	—
Uganda . . . . .	...	...	—	—	4) 5,509	4) 3,849	—	—	28,149	—
Madagascar	17,245	5,271	—	—	53,762	33,707	—	—	70,817	—
Tanganyika . . . . .	...	...	—	—	4) 7,941	4) 9,277	—	—	32,342	—
New Caledonia . . . . .	...	...	—	—	2) 714	2) 604	—	—	4,460	—
New Hebrides . . . . .	...	...	—	—	3) 243	3) 289	—	—	1,235	—
<i>Importing Countries:</i>										
Germany 5)	0	0	41,363	37,479	0	0	228,420	193,606	0	400,425
Austria 5)	0	0	1,543	1,182	0	0	8,955	5,972	0	10,986
Belgo-Luxemb. E. U.	849	179	8,514	16,733	3,607	2,372	56,322	60,111	4,526	117,643
Bulgaria	—	—	95	121	—	—	591	620	—	1,263
Denmark	—	—	3,223	2,961	—	—	41,145	26,870	—	62,071
Spain	—	—	—	—	—	—	—	—	—	—
Estonia	—	—	26	13	—	—	146	141	—	280
Finland	—	—	3,781	2,207	—	—	27,346	20,587	—	51,050
France	0	0	33,041	35,155	53	60	187,541	194,149	66	417,621
Greece	—	—	—	—	—	—	3) 3,521	3) 3,351	—	16,343
Hungary	—	—	247	326	—	—	2,427	2,211	—	4,334
Ireland	0	0	15	35	11	0	201	227	2	617
Italy	0	0	5,770	6,768	7	4	39,401	37,909	11	77,065
Latvia	—	—	24	46	—	—	198	201	—	443
Lithuania	—	—	44	24	—	—	165	159	—	375
Norway	11	18	2,624	1,978	71	101	20,492	16,006	205	38,239
Netherlands	1,113	624	9,736	5,908	8,087	2,350	62,777	49,767	8,256	101,631
Poland-Danzig	0	0	1,082	948	2	7	7,097	6,230	13	12,502
Portugal	—	—	—	—	1) 620	1) 847	1) 5,437	1) 4,517	2,310	14,288
Romania	—	—	—	—	—	—	3) 1,883	3) 1,402	—	6,471
United Kingdom	461	450	1,812	4,400	7,513	2,740	6,204	9,773	8,971	50,795
Sweden	—	—	9,852	8,675	—	—	61,800	51,377	—	105,716
Switzerland	0	0	3,126	2,923	0	2	19,590	12,800	4	31,370
Czechoslovakia	—	—	1,545	2,244	—	—	12,489	11,951	—	24,974
Yugoslavia	—	—	1,506	1,038	—	—	7,884	6,900	—	14,800
U. S. S. R.	—	—	—	—	—	—	3) 893	3) 187	—	1,398
Canada	18	55	3,091	2,392	123	205	18,770	17,701	401	41,950
United States	1,019	858	174,840	146,487	3,878	2,826	974,263	721,256	7,421	1,734,036
Argentina	—	—	—	—	—	—	1) 24,502	1) 21,592	—	58,268
Chile	—	—	—	—	—	—	3) 2,079	3) 2,092	—	8,799
Uruguay	—	—	—	—	—	—	2) 2,189	2) 1,766	—	5,754
Ceylon	0	0	328	439	0	0	1,605	1,909	2	3,283
Burma	0	0	29	15	7	7	154	132	29	293
Iraq	—	—	—	—	—	—	2) 589	2) 478	—	2,273
Iran	—	—	—	—	—	—	1) 529	1) 60	—	633
Japan	—	—	—	—	—	—	2) 3,064	2) 9,367	—	17,403
British Malaya	—	—	—	—	2) 2,006	2) 1,885	2) 6,865	2) 6,682	5,505	23,140
Palestine	—	—	—	—	1) 1,019	0	1) 1,711	1) 1,711	0	4,830
Syria and Lebanon	0	0	225	218	0	0	1,224	1,318	0	3,311
Turkey	—	—	—	—	—	—	1) 4,348	1) 4,189	—	11,477
Algeria	0	0	2,773	2,293	0	2	20,049	16,109	7	35,120
Egypt	—	—	—	—	—	—	1) 4,729	1) 6,100	—	21,511
French Morocco	—	—	—	—	—	—	2,551	3,027	—	5,937
Tunisia	0	0	507	357	7	0	1,713	1,770	4	3,415
Union of South Afr.	—	—	—	—	1) 9	1) 7	15,860	13,084	18	34,425
Australia	11	0	223	150	60	18	1,594	1,722	46	4,445
New Zealand	—	—	—	—	1) 0	2) 2	271	1,473	2	1,744
Totals	258,332	247,747	311,395	283,855	1,695,884	1,331,665	1,890,920	1,550,607	3,356,105	3,584,904

1) Up to 30 November. — 2) Up to 30 October. — 3) Up to 30 September. — 4) Up to 31 August. — 5) From 1 April 1938 not including trade between Germany and Austria.

STOCKS

Total wheat in the United States ⁽¹⁾

LOCATION	First day of month				
	January 1939	October 1938	January 1938	January 1937	January 1936
	thousand cents				
On farms	168,714	244,193	125,106	76,988	98,016
In interior mills and elevators	83,207	104,745	68,895	46,884	47,609
Commercial wheat in store	77,249	83,564	56,712	37,420	46,016
In merchant mills and elevators ⁽²⁾	56,051	65,225	59,347	58,741	62,165
Stored for others in merchant mills ⁽³⁾	8,572	12,894	9,994	2,959	3,616
<i>Total U.S. wheat as grain</i>	<i>393,793</i>	<i>510,621</i>	<i>320,054</i>	<i>222,992</i>	<i>257,422</i>
Flour (in terms of grain) in merchant mills ⁽²⁾	13,048	13,153	13,855	14,179	12,941
<i>Total U.S. wheat</i>	<i>406,841</i>	<i>523,774</i>	<i>333,909</i>	<i>237,171</i>	<i>270,363</i>
Canadian wheat in store in bond in the U. S.	4,725	1,096	2,869	15,073	20,975
<i>Total wheat in the U. S.</i>	<i>411,566</i>	<i>524,870</i>	<i>336,778</i>	<i>252,244</i>	<i>291,338</i>

(1) Incomplete data: wheat in transit is not included, wheat-flour only if in mills. See next table. Also wheat "in transit to merchant mills and attached elevators", and stocks of wheat, "bought to arrive" at merchant mills, have been omitted, because the greater part of this wheat is already included in the data given of stocks at these mills. — (2) The figures of the partial quarterly census taken by the Bureau of Census, (see next table), have been increased to allow for stocks in all mills.

Wheat and wheat-flour held by commercial mills in the United States ⁽¹⁾.

LOCATION	Last day of month				
	December 1938	September 1938	December 1937	December 1936	December 1935
	thousand cents				
Wheat stocks, the property of commercial millers ⁽²⁾ :					
Wheat held in mills, and mill-elevators attached to mills	52,296	60,332	55,074	54,746	57,192
Wheat in other elevators ⁽³⁾	33,388	26,633	23,696	18,384	18,868
<i>Total</i>	<i>85,684</i>	<i>86,965</i>	<i>78,770</i>	<i>73,130</i>	<i>76,060</i>
Wheat-flour in mills and warehouses, and in transit, sold and unsold	8,461	8,455	8,938	9,185	8,276
Wheat stored for others in mills and mill-elevators	7,997	11,927	9,274	2,757	3,327
<i>Grand total ⁽⁴⁾</i>	<i>105,855</i>	<i>111,058</i>	<i>100,903</i>	<i>89,103</i>	<i>91,293</i>

(1) Partial census by the "Bureau of Census", including mills accounting for over 90 % of the total capacity of all commercial mills. — (2) The item "Wheat in transit and bought to arrive" is omitted, as only about one-third of the quantities given are actually in transit. — (3) In country elevators, in public terminal elevators and in private terminal elevators not attached to mills. — (4) Including flour in terms of grain.

Commercial cereals in store in Canada and the United States.

SPECIFICATION	Friday or Saturday nearest 1st of month ⁽¹⁾				
	February 1939	January 1939	December 1938	February 1938	February 1937
	thousand cents				
WHEAT:					
Canadian in Canada	90,226	96,697	97,425	30,053	46,660
U. S. in Canada	151	256	333	910	0
U. S. in the United States	65,362	77,249	81,722	45,717	31,351
Canadian in the United States	3,776	4,724	4,967	1,729	12,677
TOTAL . . .	159,515	178,926	184,447	78,409	90,688
RYE:					
Canadian in Canada	1,176	1,135	1,071	721	884
U. S. in Canada	13	13	13	330	0
U. S. in the United States	4,551	4,687	4,537	2,461	2,507
Canadian in the United States		24	24	0	249
TOTAL . . .	5,740	5,859	5,645	3,512	3,640
BARLEY:					
Canadian in Canada	3,151	3,683	3,418	4,673	4,273
U. S. in Canada	0	0	0	0	(2) 13
U. S. in the United States	6,601	7,207	7,770	5,668	7,195
Canadian in the United States	0	0	15	70	2,568
TOTAL . . .	9,752	10,890	11,203	10,411	14,049
OATS:					
Canadian in Canada	3,012	3,015	2,800	3,182	4,547
U. S. in Canada	243	466	485	1,036	4
U. S. in the United States	4,974	5,414	5,656	7,937	9,941
Canadian in the United States	0	0	0	0	0
TOTAL . . .	8,229	8,895	8,941	12,155	14,492
MAIZE:					
U. S. in Canada	2,322	2,742	3,163	321	0
Of other foreign origin in Canada	400	454	377	1,787	3,330
U. S. in the United States	28,498	29,483	26,121	22,607	8,445
Of other origin in the United States	0	0	0	0	260
TOTAL . . .	31,220	32,679	29,661	24,715	12,035

(1) Friday for Canada, Saturday for the United States. — (2) Danish barley.

Wheat stocks in Australia on November 30 ⁽¹⁾.

SPECIFICATION	1938	1937	1936	1935	1934
	thousand cents				
Wheat	5,476	3,054	2,103	7,423	20,825
Wheat flour	1,790	1,529	2,021	1,793	2,248
TOTAL (including flour in terms of grain)	8,053	5,256	5,014	10,004	24,062

(1) Total stocks at the end of the agricultural year, excluding stocks in farmers' hands.

Commercial wheat in store in Australia.

Stocks of wheat, stacked at country sidings and terminal ports in the States of New South Wales, Victoria, South Australia and Western Australia, amounted to 48,010,000 centals during the last week of January 1939 against 46,741,000 centals, 13,409,000 centals, 63,594,000 centals and 40,564,000 centals respectively during the last week of December 1938, November 1938, January 1938 and January 1937.

Quantities of cereals at sea with first destination Europe.

PRODUCTS	Saturday nearest 1st of month				
	February 1939	January 1939	December 1938	February 1938	February 1937
	thousand centals				
Wheat (and flour in terms of grain)	23,597	14,808	18,758	22,224	32,501
Rye	197	216	154	120	125
Barley	2,268	1,312	2,584	2,608	2,120
Oats	915	608	752	2,083	1,053
Maize	9,696	13,954	12,845	12,514	21,960

AUTHORITY: *Broomhall's Corn Trade News*, Liverpool.

Imported grain and flour at the ports of the United Kingdom and Ireland.

PRODUCTS AND COUNTRIES	First day of month				
	February 1939	January 1939	December 1938	February 1938	February 1937
	thousand centals				
WHEAT AS GRAIN:					
United Kingdom	7,800	9,456	9,600	4,608	2,616
Ireland	1,152	1,632	1,512	984	1,104
TOTAL . . .	8,952	11,088	11,112	5,592	3,720
WHEAT-FLOUR (calculated as grain):					
United Kingdom	(1) 456	(1) 384	(2) 336	624	840
WHEAT AND FLOUR, TOTAL . . .	9,408	11,472	11,448	6,216	4,560
BARLEY:					
United Kingdom	1,100	1,400	1,560	1,000	1,160
OATS:					
United Kingdom	144	160	144	208	256
MAIZE:					
United Kingdom	1,896	1,200	1,296	3,528	3,888
Ireland	1,080	1,104	816	456	480
TOTAL . . .	2,976	2,304	2,112	3,984	4,368

(1) Including 14,000 centals in Irish ports. — (2) Including 5,000 centals in Irish ports.

AUTHORITY: *Broomhall's Corn Trade News*, Liverpool.

Cereals and potatoes belonging to farmers in Germany ⁽¹⁾.

PRODUCTS	Jan. 31 1939	Dec. 31 1938	Jan. 31 1938	Jan. 31 1937	Jan. 31 1939	Dec. 31 1938	Jan. 31 1938	Jan. 31 1937
	Percentage of total production				Stocks in thousand centals			
Winter wheat	36	47	21	24	39,100	51,000	18,100	21,700
Spring wheat	58	68	38	48	6,100	7,200	4,100	3,400
Rye	37	47	26	31	69,000	87,700	38,800	50,500
Winter barley	34	41	21	22	11,500	13,800	4,600	5,500
Spring barley	45	55	35	34	26,300	32,100	19,700	17,000
Oats	59	68	54	53	81,600	94,100	69,900	65,600
Meslin	56	66	49	53	15,400	18,200	12,400	11,000
Late potatoes	49	57	46	47	525,700	611,500	515,400	463,100

(1) 1937 frontiers.

AUTHORITY: *Reichsnährstand* (The absolute figures are calculated by the I.I.A.).Cereals ⁽¹⁾ in elevators, mills, manufacturing establishments, etc. ⁽²⁾ in Germany ⁽³⁾.

LOCATION AND PRODUCTS	Last day of month				
	January 1939	December 1938	November 1938	January 1938	January 1937
	thousand centals				
WHEAT:					
Grain in mills and elevators (a)	49,205	44,747	39,370	27,833	16,614
Grain held by manufactures, etc. (b)	721	578	527	267	231
Flour for bread in mills, etc. (a)	3,849	3,898	3,957	3,142	1,801
Flour for bread held by manufactur- ers, etc. (b)	37	42	40	44	35
TOTAL ⁽⁴⁾	54,783	50,250	44,893	32,082	19,169
RYE:					
Grain in mills and elevators (a)	51,577	46,714	43,314	31,118	18,720
Grain held by manufacturers, etc. (b)	1,202	1,122	1,334	974	223
Flour for bread in mills, etc. (a)	2,549	2,725	2,917	2,498	1,737
Flour for bread held by manufactur- ers, etc. (b)	11	22	13	13	7
TOTAL ⁽⁴⁾	55,938	51,227	48,264	35,082	21,149
BARLEY:					
In mills and elevators (a)	9,621	9,778	9,894	5,805	2,496
In manufacturing establishments, etc. (b) . .	8,616	9,374	9,837	8,525	5,805
TOTAL	18,237	19,152	19,731	14,330	8,301
OATS:					
In mills and elevators (a)	5,412	4,524	5,348	4,597	2,820
In manufacturing establishments, etc. (b) . .	701	611	547	712	659
TOTAL	6,113	5,135	5,895	5,309	3,479
MESLIN	571	563	447	392	138
MAIZE:					
In mills and elevators (a)	7,258	9,074	10,342	9,509	1,285
In manufacturing establishments, etc. (b) . .	743	1,016	1,204	580	176
TOTAL	8,001	10,090	11,546	10,089	1,461

(1) Excluding quantities in transit and stocks in the hands of bakers. — (2) Including cereals (a) in elevators and commercial mills, and (b) in the hands of manufacturers of mixed feedstuffs, malt, coffee substitutes and other foodstuffs, and in breweries. — (3) 1937 frontiers. — (4) Including flour in terms of grain, on a basis which, in accordance with government regulations on milling, has been altered several times.

Imported cereals in Antwerpen, Rotterdam and Amsterdam.

PRODUCTS AND LOCATION	Saturday nearest 1st of month ⁽¹⁾				
	February 1939	January 1939	December 1938	February 1938	February 1937
	thousand centals				
WHEAT:					
Antwerpen	646	1,262	1,446	1,859	1,526
Rotterdam	2,200	2,099	2,108	1,412	954
Amsterdam	59	120	171	24	13
RYE:					
Antwerpen	131	58	32	45	32
Rotterdam	0	0	0	66	2
Amsterdam	0	2	0	0	0
BARLEY:					
Antwerpen	216	193	190	235	321
Rotterdam	6	24	22	33	11
Amsterdam	8	12	15	7	0
OATS:					
Antwerpen	27	0	2	11	14
Rotterdam	4	7	4	11	0
Amsterdam	48	49	50	26	26
MAIZE:					
Antwerpen	39	35	80	399	223
Rotterdam	40	29	121	234	220
Amsterdam	94	10	10	109	60

(1) For Antwerpen the data refer to the last day of the preceding month, for Amsterdam to the first day of the month indicated.

AUTHORITIES: *Nederlandsche Silo- Elevator- en Graanfactor Mij.*, Amsterdam, and *Chamber of Commerce and Industry for Rotterdam*, Rotterdam.

Cotton stocks on hand in the United States.

LOCATION	Last day of month				
	January 1939	December 1938	November 1938	January 1938	January 1937
	thousand centals				
In consuming establishments	8,079	8,427	8,512	8,754	10,091
In public storage and at compresses . . .	73,460	76,188	77,411	58,498	33,115
TOTAL . . .	81,539	84,615	85,923	67,252	43,206

Cotton stocks at Bombay, Alexandria and Port Sudan.

LOCATION	Thursday nearest 1st of month ⁽¹⁾				
	February 1939	January 1939	December 1938	February 1938	February 1937
	thousand centals				
Bombay ⁽²⁾	3,486	2,750	2,384	2,826	3,741
Alexandria ⁽²⁾	3,346	3,316	2,624	2,570	2,949
Port Sudan . . . . .	...	277	335	168	300

(1) For Port Sudan the data refer to the last day of the preceding month. — (2) Stocks held by exporters, dealers and millers. — (3) Quantities consumed in Alexandria, or returned to the interior of the country, are not included.

AUTHORITIES: *East Indian Cotton Assn.* and *Commission de la Bourse de Mind-el-Bassal*.

Cotton stocks in Europe.

LOCATION, DESCRIPTION	Thursday or Friday nearest 1st of month ⁽¹⁾				
	February 1939	January 1939	December 1938	February 1938	February 1937
	thousand centals				
<i>Great Britain:</i>					
American	2,272	2,487	2,537	3,697	1,980
Argentine	67	68	72	45	186
Brazilian	560	595	584	342	628
Peruvian	788	768	737	465	270
East Indian	134	150	165	175	258
Egyptian	464	475	408	358	609
Sudanese	414	404	308	276	438
W. Indian, W. and E. African, and other.	260	260	250	253	156
<i>Total</i>	<i>4,959</i>	<i>5,207</i>	<i>5,061</i>	<i>5,611</i>	<i>4,525</i>
<i>Bremen:</i>					
American	723	836	927	1,143	795
South American	168	197	218	93	103
Other	132	125	129	74	119
<i>Total</i>	<i>1,023</i>	<i>1,158</i>	<i>1,274</i>	<i>1,310</i>	<i>1,017</i>
<i>Le Havre:</i>					
American	1,084	1,280	1,238	1,485	1,176
South American	179	230	241	24	54
French Colonial	154	167	114	39	54
Other	32	28	26	48	44
<i>Total</i>	<i>1,449</i>	<i>1,705</i>	<i>1,619</i>	<i>1,596</i>	<i>1,328</i>
<i>Total Continent ⁽²⁾:</i>					
American	2,096	2,475	2,524	2,983	2,117
South American	348	426	459	126	175
East Indian	69	85	87	70	134
Egyptian	87	94	94	67	69
W. Indian, W. and E. African, and other.	273	282	241	130	192
<i>Total</i>	<i>2,873</i>	<i>3,362</i>	<i>3,405</i>	<i>3,376</i>	<i>2,687</i>
<i>Grand total</i>	<i>7,832</i>	<i>8,569</i>	<i>8,466</i>	<i>8,987</i>	<i>7,212</i>

(1) Thursday for Continent, Friday for Great Britain. — (2) Including Bremen and Le Havre.

AUTHORITIES: Liverpool Cotton Assn. and (for Le Havre) *Bulletin de Correspondance de la Bourse du Havre*.

PRICES

PRICES BY PRODUCTS

All quotations are spot, on Fridays, unless otherwise stated. The monthly averages are based on the Friday quotations, and the yearly averages on the monthly.

DESCRIPTION	Feb. 17	Feb. 10	Feb. 3	Jan. 27	Jan. 20	AVERAGE					Commercial Season (?)	
	1939	1939	1939	1939	1939	Jan. 1939	Feb. 1938	Feb. 1937	1937-38 1936-37			
Wheat (1)												
Budapest: Tisza wheat, 78 kg. p. hl. (pengő p. quintal)	20.70	20.65	20.50	20.50	20.50	20.42	20.88	20.00	21.44	19.04		
Braila: Home-grown, good qual. (lei p. ql.)	435	440	452	455	442	433	n. 534	n. q.	520	* 486		
Winnipeg: No. 1 Manitoba (cents p. 60 lb.)	61 3/8	59 3/8	60 1/8	60 7/8	59 5/8	60	144 1/4	128	131 1/4	122 1/8		
Chicago: No. 2 Hard Winter (cents p. 60 lb.)	72 1/4	71 1/4 n.	72	n. 73	n. 72	n. 72	102	139 1/2	96 5/8	130		
Minneapolis (cents p. 60 lb.):												
No. 1 Northern	75 1/8	75 1/4	75 7/8	77 3/8	77 1/8	75 1/2	110	147 1/2	104 3/8	141		
No. 2 Amber Durum	68 5/8	68 1/4	69 1/2	69 3/8	69 1/8	69	99 3/8	153 1/2	93 3/4	138 3/8		
New York: No. 2 Hard Winter (cents p. 60 lb.)	82 3/8	82	83 1/4	83 3/8	82 1/8	82 1/8	118	152 1/8	112 7/8	142 3/8		
Buenos Aires (a): No. 2 Hard, 80 kg. p. hl. (paper pesos p. quintal)	7.00	7.00	7.00	7.00	7.00	7.00	12.10	11.42	12.20	12.28		
Karachi: White Karachi, 2% barley, 1 1/2% impurities (rupees p. 656 lb.)	24-9-0	25-0-0	24-8-0	24-12-0	24-15-0	24-15-3	27-5-0	32-0-3	26-15-9	31-4-11		
Hamburg (c. i. f.; Rm. p. quintal):												
No. 1 Manitoba	7.93	7.86	7.91	7.95	7.93	7.94	16.78	14.04	14.50	13.32		
Barusso, 80 kg. p. hl.	5.87	5.91	5.95	5.95	5.93	5.99	12.00	11.13	11.45	11.90		
Antwerpen (francs p. quintal):												
Home-grown	121.00	120.00	119.00	119.00	119.00	119.00	136.00	135.25	135.05	135.40		
No. 1 Manitoba (Atlantic; c. i. f., arrived)	93.00	93.00	93.50	93.00	92.00	92.60	195.75	161.50	171.20	154.50		
Bahia (c. i. f., arrived) (?)	75.50	75.50	76.50	76.00	76.00	77.25	149.00	138.00	142.10	141.05		
London, Mark Lane: English (sh. p. 504 lb.; on the farm)	18/6	18/9	19/3	19/6	19/6	19/6 3/4	36/1 3/4	39/4 1/2	37/7 1/2	40/1 1/4		
Liverpool and London (c. i. f., parcels, shipping current month; sh. p. 480 lb.):												
Danubian (on sample)	19/1 1/2	19/4 1/2	19/6	19/6	19/4 1/2	19/6 1/4	n. q.	n. q.	* 36/2 1/2	* 38/1 1/4		
Soviet (on sample)	n. q.	n. q.	n. q.	n. q.	n. q.	n. q.	* 40/4	n. q.	* 38/5 1/2	n. q.		
No. 1 Northern Manitoba (Atlantic) . .	28/1 1/2 n.	27/11 1/4 n.	28/4 1/2	28/6	n. 28/-	28/4	57/4	n. q.	50/5 1/2	* 46/0 1/4		
No. 1 Northern Manitoba (Pacific) . .	26/9	26/6	27/-	27/1 1/2	26/10 1/2	27/0 3/4	54/8 1/2	48/8 1/2	* 48/11	* 45/9 3/4		
No. 3 Northern Manitoba (Pacific) . .	24/-	24/-	24/6	24/6	24/6	24/8 1/2	45/6 1/4	* 45/1 1/2	* 41/10 1/2	* 43/6		
No. 2 Hard Winter (Gulf)	5) 21/10 1/2	5) 22/3	5) 22/7 1/2	5) 21/11 1/4	5) 21/5 1/4	5) 21/6 1/2	40/0 3/4	n. q.	39/0 3/4	n. q.		
Soft White Pacific	21/7 1/2	n. q.	n. q.	n. q.	n. q.	n. q.	* 35/10	n. q.	* 33/10 1/4	n. q.		
Rosafé, 63 1/2 lb. p. bush	7) 21/1 1/2	7) 21/3	7) 21/9	7) 21/9	7) 21/6	7) 21/6 3/4	42/2	* 38/11 1/4	38/2 1/4	* 39/3 3/4		
Choice White Karachi	n. q.	n. q.	n. q.	n. q.	n. q.	n. q.	37/0 3/4	43/2 1/2	* 36/5 3/4	42/5 1/4		
West Australian (cargoes)	23/-	23/-	23/9	23/6	23/6	23/4 3/4	37/4 1/2	43/0 3/4	37/7 1/2	43/4 1/2		
New South Wales (cargoes)	23/-	23/-	23/9	24/4 1/2	23/6	23/7 1/2	37/2 1/4	43/-	37/6	43/0 3/4		

* Indicates that the product was not quoted during part of the period under review. — n. q. = not quoted. — n. = nominal. — (a) Thursday prices.

(1) For fixed prices of wheat see Crop Report July 1938, p. 681 (for Berlin and Italy) and Sept. 1938, p. 861 (for France). — (2) Before Aug. 1937, "Barusso". — (3) August-July. — (4) Afoal. — (5) No. 1 Hard Winter. — (6) Shipping; March. — (7) New crop; 64 lb. per bushel.

DESCRIPTION	Feb. 17	Feb. 10	Feb. 3	Jan. 27	Jan. 20	AVERAGE					Commercial Season ⁽⁴⁾	
	1939	1939	1939	1939	1939	Jan. 1939	Feb. 1938	Feb. 1937			1937-38	1936-37
Rye ⁽¹⁾.												
Hamburg: Plata, 72-73 kg. p. hl. (c.i.f.; Rm. p. quintal).	5.38	5.41	5.48	5.48	5.49	5.53	11.64	11.32	*	11.08	10.30	
Budapest: Pest rye (pengő p. quintal).	13.90	13.95	13.95	14.05	14.05	14.05	18.61	18.71		18.57	17.17	
Warszawa: Good quality (zloty p. quintal).	14.50	14.25	14.12	14.25	14.50	14.53	21.22	24.43		22.52	21.58	
Winnipeg: No. 2 rye (cents p. 56 lb.).	41 1/8	40 3/8	41 1/8	41 3/8	41	41 1/8	82 1/4	105 3/8		72 1/8	98 3/4	
Minneapolis: No. 2 rye (cents p. 56 lb.).	45	44 1/8	44 7/8	45 3/8	45 3/8	45 3/8	75	111 7/8		67 1/8	99 7/8	
Antwerpen (francs p. quintal):												
Home-grown	n. q.	n. q.	n. q.	n. q.	n. q.	n. q.	126.75	n. q.		124.85	n. q.	
Soviet (c.i.f., arrived)	61.00	61.00	64.00	63.00	65.00	64.75	118.95	107.85		112.50	114.90	
Plata (c.i.f., arrived)	82.00	82.00	86.00	86.00	86.00	86.75	126.25	133.10		124.55	122.85	
Groningen (a): Home-grown (fl. p. quintal)	7.67	7.82	7.92	7.75	7.72	7.77	7.08	8.26	*	7.12	8.12	
Barley ⁽¹⁾.												
Warszawa (zloty per quintal):												
Malting, good quality	18.50	18.50	18.50	18.50	18.00	18.12	20.94	26.75	*	22.41	25.12	
Barley for other purposes, 1st quality	17.12	17.12	17.12	17.12	16.87	17.06	19.49	24.50		19.76	22.71	
Braila: Average quality (lei p. quintal).	370	382	387	387	390	377	n. q.	365		321		
Winnipeg: No. 4 Western (cents p. 48 lb.).	35 1/2	35 1/8	35 5/8	35 5/8	34 1/4	35 1/4	62 3/4	78 1/2		56 1/8	66 3/4	
Chicago: Feeding (on sample; cents p. 48 lb.).	39 1/8	39 1/2	40	40	40	40 1/4	56 3/4	84		51 3/8	74 1/4	
Minneapolis: No. 2 Feeding (cents p. 48 lb.).	42	42	42	42 1/2	42 1/2	42 3/8	61 1/2	86 1/8		53 1/4	77 1/2	
Antwerpen: (c.i.f., arrived; frs. per ql):												
Danubian	73.00	73.50	74.50	76.50	79.00	78.85	109.00	114.85		106.10	107.75	
No. 2 Federal ⁽²⁾	71.50	73.00	73.00	75.00	77.00	76.85	106.60	n. q.		100.80	n. q.	
London, Mark Lane: English malting, good quality (sh. p. 448 lb., on farm)	35/-	35/-	35/-	35/-	35/-	35/-	52 1/2	40/6		53/-	41/2	
Liverpool and London (c.i.f., parcels; shipping current month; sh. p. 400 lb.):												
Danubian, 3 % impurities	n. q.	n. q.	n. q.	n. q.	n. q.	n. q.	n. q.	n. q.		n. q.	23/5	
Soviet (Azov - Black Sea)	17/6	17/9	17 7/16	17/9	18/9	19/-	n. q.	n. q.		24/-	n. q.	
No. 3 Canadian Western (Atlantic)	19/3	19 1/2	19/6	19 10/16	20/-	20/1	22 7/6	n. q.		25/11	27/3	
No. 3 Federal (Atlantic)	n. q.	n. q.	n. q.	n. q.	n. q.	n. q.	23 3/4	n. q.		22/3	n. q.	
No. 1 Californian brewing (sh. p. 448 lb.).	28/6	28/6	29/-	29/6	30/-	29/6	36 3/4	n. q.		34 11/16	40/6	
Plata, 64-65 kg. p. hl. ⁽³⁾	17/9	18/-	18 4/16	18/9	19/3	19/4	27 11/16	26 1/2		26 4/16	25 0/16	
Iraqulan	18/-	18 1/16	18/-	18/-	18/9	19 0/16	26 2 1/4	25 1/16		24 5/16	23 11/16	
No. 1 Australian Chevalier (sh. p. 448 lb.).	26/-	25/-	25/-	25/6	26/-	25 11/16	38 9/16	45 10/16		37/3	39 3/16	
Groningen (a): Home-grown, winter (fl. p. q.)	n. q.	n. q.	n. q.	8.42	8.37	8.30	6.67	8.25		6.51	7.68	
Oats ⁽¹⁾.												
Winnipeg: No. 2 White (cents per 34 lb.).	28 7/8	28 3/8	29 3/8	30	30 1/8	30	57	55 1/4		50 3/8	52 7/8	
Chicago: No. 2 White (cents per 32 lb.).	32	31 1/4	32 1/2	31 1/2	32 1/4	32 1/8	33 7/8	52 7/8		32 1/8	49 3/4	
Buenos Aires (b). No. 2 White, 49 kg. p. hl. (paper pesos p. quintal)	4.45	4.35	4.30	4.40	4.50	4.55	6.87	6.44		6.32	6.25	
Paris: Home-grown (delivery regional depots; frs. p. quintal).	100.25	103.25	109.00	107.75	102.75	102.30	122.85	120.95		128.75	115.80	
London, Mark Lane: English white (sh. p. 336 lb., on farm)	19/6	19/6	19/6	19/6	19/-	19/3	26/9	25/-		26 6/16	23 9/16	
Liverpool and London (c.i.f., parcels; shipping current month; sh. p. 320 lb.):												
No. 1 Canadian feed (Atlantic)	15 7/16	15/9	16/-	16/-	16/-	16 1/16	n. q.	n. q.		24/-	24/-	
No. 2 Canadian Western (Atlantic)	16 7/16	16/9	17 1/16	17 1/16	17 1/16	17 2/16	n. q.	n. q.		n. q.	23 4/16	
Plata, f. a. q.	11/9	11 10/16	12/-	12 1/16	12 4/16	12 5/16	16/3	16/3		15 11/16	16 3/16	
Milano (c) (lire p. quintal):												
Home-grown	96.50	98.50	99.50	99.50	99.50	99.50	100.75	105.20		100.05	99.60	
Foreign	95.50	95.50	95.50	95.50	95.50	95.50	96.50	107.70		97.15	100.45	

* Indicates that the product was not quoted during part of the period under review. — n. q. = not quoted. — n. = nominal. — (a) Prices of preceding Tuesday. — (b) Thursday prices. — (c) Saturday prices.

(1) For the fixed prices of rye, feeding barley and oats in Berlin see Crop Report July 1938, p. 681; for those of malting barley in Praha see Crop Report August 1938, p. 781. — (2) As from Sept. 23, 1938: No. 3 Federal. — (3) Also indicated as "fair average quality" (f.a.q.). — (4) August-July. — (5) Afloat. — (6) Shipping Pacific. — (7) Shipping March, Pacific. — (8) Shipping April-May. — (9) Shipping March-April. — (10) Shipping March. — (11) Spring barley.

DESCRIPTION	Feb. 17	Feb. 10	Feb. 3	Jan. 27	Jan. 20	Average					Commercial		
	1939	1939	1939	1939	1939	Jan. 1939	Feb. 1938	Feb. 1937	Season (%)		1937-38	1936-37	
Maize.													
Braila: Average quality (lei p. quintal).	385	397	405	417	425	415	n. q.	n. q.	* 313	* 264			
Chicago: No. 3 Yellow (cents p. 56 lb.).	48 3/4	48	49	50	51 1/4	51 3/8	57 5/8	111 3/4	83	103 1/2			
Buenos Aires (a): Yellow Plata (paper pesos p. quintal)	6.25	6.50	6.95	7.07	7.15	7.40	9.49	6.53	7.79	5.85			
Antwerpen (c. i. f., arrived; francs p. qt.):													
Bessarabian	79.00	79.00	85.00	86.00	89.00	89.00	n. q.	n. q.	n. q.	n. q.			
Yellow Plata	79.50	79.50	85.50	86.50	90.00	89.85	110.95	81.00	101.00	78.65			
Cinquantino (Argentine "Cuarentino")	105.00	107.00	112.00	115.00	117.50	118.25	116.50	86.10	109.05	83.10			
Marseilles (c. i. f., arrived; frs. p. 100 kg.):													
Yellow Indochinese	128.50	126.00	130.00	121.50	121.00	120.85	...	...	...	...
No. 1 Madagascar	121.00	n. q.	n. q.	n. q.	n. q.	n. q.	...	...	...	...
Liverpool and London (c. i. f., parcels; shipping current month; sh. p. 480 lb.):													
Danubian	24/3	n. 24/3	24/4 1/2	25/0 1/2	25/7 1/2	26/1 1/2	* 28/6	* 26/1	* 27/5	* 23/5			
Yellow Soviet	23/6	24/-	24/9	26/-	26/-	26/4 1/2	n. q.	n. q.	n. q.	n. q.			
No. 2 Yellow American (Gulf)	23/9	24/-	24/9	25/7 1/2	26/-	26/2 1/2	26/9 1/2	n. q.	* 27/2	n. q.			
Yellow Plata	24/3 3/4	24/3	26/-	26/4 1/2	26/7 1/2	27/1 1/2	* 32/8	24/3 1/4	28/4	22/4			
No. 2 White flat African	24/6	25/3	25/9	26/4 1/2	27/-	26/8 1/2	* 29/-	n. q.	* 27/10	n. q.			
Milano (b): Yellow, home-grown (lire p. quintal) (c)	90.00	90.00	90.00	90.00	90.00	90.00	83.60	82.00	83.00	85.55			
Rice (milled) (2).													
Rangoon (delivery current month; rupees p. 7500 lb.):									1938	1937			
No. 2 Europe (Burma)	212-8	212-8	207-8	215-0	207-8	210-10	233-0	259-0	255-12	263-4			
Kanungtoe, small mills specials	197-0	196-0	190-0	197-8	191-0	193-0	205-8	231-8	219-12	235-13			
Big mills specials	195-0	194-0	187-8	193-8	187-8	189-0	193-12	220-10	207-0	229-6			
Saigon (Indochinese piastres p. quintal):													
No. 1 Round white, 25 % broken	9.26	9.14	9.08	8.57	8.56	8.56	9.59	6.93	10.66	7.85			
No. 2 Japan, 40 % broken	8.90	8.81	8.65	8.28	8.28	8.26	9.25	6.74	10.11	7.58			
Marseilles: No. 1 Saigon (c. i. f., arrived; frs. p. quintal)	123.50	124.00	126.00	121.00	120.00	120.35	125.75	92.35	138.65	104.90			
London (a) (c. i. f., shipping current month; shillings p. cwt.):													
Italian oiled	17/9	17/9	17/9	17/9	17/3	17/4 1/2	17/6	* 16/6	* 17/10	* 16/11 1/2			
American Blue Rose, extra fancy	16/11 1/2	16/4 1/2	16/7 1/2	16/7 1/2	16/4 1/2	16/3 1/2	14/11 1/2	20/11 1/2	15/0 1/2	18/1 1/2			
No. 2 Rangoon or Bassein (Burma) (3)	7/0 1/4	7/-	7/-	7/-	6/11 1/2	6/11 1/2	8/0 3/4	9/1	8/3 1/2	9/2 1/2			
No. 1 Saigon	11/1 1/2	7/1 1/2	7/10 1/2	6/10 1/2	6/10 1/2	6/10	8/8 1/2	9/3 1/2	8/5 1/2	9/2 1/2			
Siam Super (3)	8/1 1/2	8/1 1/2	7/10 1/2	7/9 3/4	8/3	8/0 1/4	9/4	11/3 1/2	9/2 1/2	10/8			
Tokyo: "Tyumai", brown Japanese, average quality (yen p. koku).	...	...	...	...	...	...	33.23	30.95	34.26	32.37		
Linseed.													
Buenos Aires (a): Current quality, 4 % impurities (paper pesos p. quintal)	15/ 13.35	15/ 13.33	15/ 13.30	15/ 13.30	15/ 13.45	15/ 13.46	15.71	14.19	14.31	15.47			
Bombay: Bold (rupees p. cwt.)	7-2-2	7-4-0	7-2-0	7-0-0	7-1-6	7-2-1	7-12-1	7-5-4	7-4-10	7-14-10			
Antwerpen: Plata (c. i. f., arrived; frs. p. quintal)	149.00	148.00	145.00	150.00	151.00	152.00	179.85	164.50	166.20	183.10			
London (c. i. f., shipping current month; £ p. long ton):													
Plata (delivery Hull)	15/10-17-6	15/10-17-6	15/10-16-3	15/10-16-3	15/10-16-3	15/10-17-2	12-10-7	11-13-9	11-10-11	12-16-5			
Bombay bold	13-1-3	13-3-9	13-1-3	13-0-0	12-18-9	12-19-4	14-11-10	14-2-6	13-3-9	15-5-7			
Duluth: No. 1 Northern (futures; cents p. 56 lb.) (4)	177	176	176	185	185	186 1/2	204 1/2	215 1/2	183 1/2	204 1/2			
Minneapolis: No. 1 Northern (cts. p. 56 lb.).	185	183 1/2	n. 183 1/2	n. 192 1/2	193	194 1/2	212	221 1/2	190	209 1/2			
Cottonseed.													
Alexandria (a) (piastres p. ardeb):									1937-38	1936-37			
Upper Egyptian	61.1	63.5	64.9	60.8	65.0	65.7	57.3	78.8	55.3	77.8			
Sakellaridis	57.7	59.6	60.7	56.4	60.6	61.3	52.8	72.7	50.7	72.6			
London: (c. i. f.; £ p. long ton):													
Egyptian black (shipping current month)	6-8-9	6-11-3	6-13-9	6-10-0	6-15-0	6-15-7	6-4-4	8-1-7	6-1-6	8-3-3			
Sakellaridis (arrived) (5)	n. 6-3-9	n. 6-6-3	n. 6-7-6	n. 6-5-0	n. 6-10-0	n. 6-11-7	6-3-1	7-18-1	5-17-10	* 7-16-8			

* Indicates that the product was not quoted during part of the period under review. — n. q. = not quoted. — n. = nominal.
— (a) Thursday prices. — (b) Saturday prices.

(1) Oct. 1935-Jan. 1938: maximum prices for best quality. To end December 1936: free at Milano station; subsequently: free at producer's station. — (2) For the maximum prices of rice in Italy see Crop Report Oct. 1938, p. 979. — (3) As from June 1936 "London Standard". — (4) Quotations refer to May futures from January to May, to July futures in June and July, to September futures in August and September and to December futures during the remaining months. — (5) From June 8, 1938 indicated as Mela-Sakellaris. — (6) Maize: May-April. Cottonseed: Sept.-Aug. — (7) Jan. 13: 125.00; Jan. 6: 116.00 — (8) Aloft. — (9) Shipping Feb. — (10) No. 2 White Rhodesian. — (11) Jan. 13: 8.69; Jan. 6: 8.44. — (12) Jan. 13: 8.36; Jan. 6: 8.11. — (13) Jan. 13: 124.00. — (14) New crop; shipping Feb.-March. — (15) New crop. — (16) Jan. 13: 67.7; Jan. 5: 69.3. — (17) Jan. 13: 63.3; Jan. 5: 64.8.

DESCRIPTION	Feb. 17	Feb. 10	Feb. 3	Jan. 27	Jan. 20	Average					Commercial Season (°)	
	1939	1939	1939	1939	1939	Jan. 1939	Feb. 1938	Feb. 1937				
									1937-38	1936-37		
Cotton (°).												
New Orleans: Middling (cents p. lb.) . .	8.54	8.62	8.69	8.98	8.73	8.71	9.07	13.02	8.87	12.78		
New York: Middling (cents p. lb.) . . .	8.94	9.00	9.04	8.61	9.10	8.85	8.91	13.15	8.75	12.91		
Bombay (rupees p. 784 lb.):												
Broach, f.g. (futures) (°)	147-14	152-2	152-12	152-6	157-2	156-15	176-10	* 224-3	* 166-11	* 224-14		
Broach, f.g. (spot)	n. q.	n. q.	n. q.	n. q.	n. q.	n. q.	n. q.	* 221-10	* 162-9	* 228-4		
Oomra, fine (spot)	140-0	143-0	142-0	142-0	147-0	147-4	160-12	208-4	* 148-13	* 214-14		
Alexandria (a) (talaris p. kantar):												
Sakellaridis, f.g.f.	12.30	12.25	12.20	12.10	12.10	12.25	14.30	18.59	14.19	19.22		
Giza 7, f.g.f.	11.67	11.82	11.97	11.72	11.97	12.07	13.35	* 15.93	12.81	17.22		
Ashmuni, f.g.f.	9.95	10.15	10.00	9.85	10.00	10.17	10.86	14.75	10.62	15.19		
Bremen: Middling (U.S. cents p. lb.) . .	9.93	9.85	9.90	9.87	10.00	9.93	10.78	13.22	10.63	15.01		
M.g. Broach, f.g. (pence p. lb.) . . .	n. 4.20	n. 4.30	n. 4.35	n. 4.35	n. 4.40	n. 4.41	n. 4.54	n. 5.45	n. 4.68	n. 5.78		
Le Havre: Middling (futures; frs p. 50 kg.)	400.00	403.50	402.00	397.00	397.00	399.35	393.75	391.25	392.75	366.60		
Liverpool (pence per lb.):												
Middling, super good	5.85	5.77	5.83	5.80	5.88	5.89	5.88	8.07	5.79	7.89		
Middling	5.13	5.07	5.13	5.10	5.18	5.19	5.08	7.30	4.97	7.11		
São Paulo, g.f.	5.15	5.07	5.13	5.10	5.18	5.19	5.33	7.39	5.16	7.21		
Broach, good staple, f.g.	n. 3.87	n. 3.82	n. 3.92	n. 3.90	n. 3.96	n. 3.97	n. 4.17	n. 5.68	n. 4.04	n. 5.71		
C.P. Oomra, superfine	4.07	4.02	4.07	4.05	4.11	4.12	4.44	5.85	4.29	5.85		
Egyptian Sakellaridis, f.g.f.	6.91	6.97	7.35	7.20	7.28	7.31	8.42	10.00	8.22	10.79		
Giza 7, f.g.f.	6.91	7.02	7.40	7.25	7.33	7.36	6.62	8.90	7.42	* 9.72		
Upper Egyptian, f.g.f.	5.90	5.90	5.94	5.83	5.86	5.91	6.30	8.18	6.31	8.46		
Bacon.												
London, Provision Exchange (b) (shillings p. cwt.):									1938	1937		
English, No. 1, lean sizable	100/-	100/-	100/-	100/-	95/-	97/6	99/-	88/-	91/1	94/5		
Danish, No. 1, sizable	100/-	100/-	100/-	100/-	95/-	97/6	99/-	86/-	99/3	94/1		
Irish, No. 1, sizable	98/-	97/-	97/-	98/-	93/6	95/3	96/10	83/9	95/11	92/9		
Lithuanian, No. 1, sizable	92/-	90/-	90/-	90/-	84/-	87/3	89/3	80/-	91/8	87/4		
Dutch, No. 1, sizable	96/-	96/-	96/-	96/-	90/-	93/3	95/6	83/-	96/1	91/4		
Polish, No. 1, sizable	92/-	90/-	90/-	90/-	84/-	87/3	89/3	80/-	92/2	87/4		
Swedish, No. 1, sizable	96/-	96/-	96/-	96/-	90/-	93/3	95/6	82/-	96/1	91/2		
Canadian, No. 1, sizable	92/-	90/-	90/-	90/-	84/-	87/3	88/9	77/-	91/10	86/3		
Butter (3).												
Köbenhavn (a): Danish (crs. p. quint.) .	268.00	276.00	260.00	245.00	250.00	253.75	224.00	209.00	230.50	224.45		
Leeuwarden, Commission for butter quotations (a): Dutch (cents p. kg.) (4) . .	87	88	85	83	84	84 1/4	81	68 1/2	80 1/4	77 1/8		
Antwerpen, auction: Belgian (frs. p. kg.)	24.75	26.30	25.20	24.55	24.70	24.40	26.25	23.90	23.30	22.65		
Liverpool: Irish creamery (sh. p. cwt.) .	n. q.	n. q.	n. q.	n. q.	n. q.	n. q.	135/9	108/-	* 124/6	121/3		
London (c): English blended (sh. p. cwt.) .	144/8	144/8	135/4	135/4	135/4	133/-	130/8	119/7	132/7	131/7		
London, Provision Exchange (b) (sh. p. cwt.):												
Danish creamery, unsalted	146/6	151/6	144/6	137/-	139/-	141/3	162/10	119/4	130/-	127/1		
Lithuanian, unsalted	125/-	125/-	125/-	125/-	126/-	124/6	115/-	n. q.	* 115/8	* 114/11		
Dutch creamery, unsalted	128/-	127/-	123/-	124/-	123/-	124/6	113/7	96/-	113/10	109/7		
Argentine, finest, unsalted	115/-	114/-	114/-	116/-	117/-	114/9	n. q.	* 86/4	* 102/11	* 94/4		
Siberian, salted	n. q.	n. q.	n. q.	n. q.	n. q.	n. q.	n. q.	86/6	n. q.	* 100/2		
Australian, finest, salted	118/6	119/-	119/6	119/6	121/6	119/7	111/4	86/-	114/9	109/8		
New Zealand, finest, salted	122/-	122/-	122/6	124/-	125/6	122/3	111/7	86/1	117/1	110/5		
Montreal (d): First grade creamery (cents p. lb.)	22 1/8	22 1/4	22 1/2	22 3/4	24 1/2	23 3/8	34	—	27	* 27 1/8		
New York (d): 92 score, creamery (cents p. lb.)	26 1/4	26 1/4	26 1/4	26 1/4	26 1/4	26 1/4	31	34 1/2	28	34 1/4		

* Indicates that the product was not quoted during part of the period under review. — n. q. = not quoted. — n. = nominal. — (a) Thursday prices. — (b) Average prices Thursdays, and Friday mornings. — (c) Average prices for weeks commencing on Thursdays. — (d) Wednesday prices.

(1) Quotations refer to April-May futures during the period September-May following, and to July-August futures during the other months. — (2) Quotation refer to futures for the current month. — (3) For fixed prices of butter in Germany see Crop Report Nov. 1938, p. 1080. — (4) For home prices these quotations must be increased by a consumption tax which, from Jan. 12, 1939 amounts to 60 cents per kg. — (5) Cotton: August-July. — (6) Jan. 12: 12.30; Jan. 5: 12.50. — (7) Jan. 12: 12.17; Jan. 5: 12.42. — (8) Jan. 12: 10.30; Jan. 5: 10.55 — (9) Feb. futures.

DESCRIPTION	Feb. 17	Feb. 10	Feb. 3	Jan. 27	Jan. 20	AVERAGE				
	1939	1939	1939	1939	1939	Jan.	Feb.	Feb.	Commercial Season	
	1939	1938	1937	1938	1937					
Cheese (1).										
Milano (lire p. quintal):										
Parmigiano-Reggiano, 1st quality, production 1936 (2).	1,310.00	1,310.00	1,310.00	1,310.00	1,300.00	1,302.50	1,280.00	956.25	*1,229.00	* 868.80
Parmigiano-Reggiano, 1st quality, production 1937 (2).	1,180.00	1,180.00	1,180.00	1,180.00	1,700.00	1,172.50	1,150.00	837.50	1,130.85	895.15
Gorgonzola green, mature, choice . .	740.00	740.00	740.00	740.00	730.00	727.50	800.00	700.00	773.10	714.60
Roma: Roman Pecorino, choice (lire p. quintal)	1,100.00	1,100.00	1,100.00	1,100.00	1,100.00	1,100.00	1,025.00	937.50	1,058.30	954.05
Alkmaar: Edam 40+, National Mark, factory cheese, small (florins p. 50 kg.)	19.50	20.50	20.25	20.25	19.75	20.06	22.19	18.75	21.33	19.73
Gouda: Gouda 45+, National Mark, farm made, 1st qual. (florins p. 50 kg.) .	26.25	26.25	26.25	26.00	26.50	26.50	26.25	22.50	25.72	25.21
London, Provision Exchange (a) (shillings p. cwt.):										
English Cheddar, finest farmers . . .	91/-	91/-	91/-	91/-	90/-	90/6	97/-	87/-	* 92/1	* 90/3
English Cheshire, Nat. Mark Selected .	101/6	99/2	99/2	94/6	93/4	93/-	123/8	99/9	96/9	97/10
Italian Gorgonzola	86/4	86/4	87/6	87/6	91/-	90/5	113/9	104/8	103/2	103/6
Dutch Edam, 40+ (b)	57/-	56/6	56/3	56/6	58/-	59/-	65/10	53/11	59/3	57/1
Canadian, finest white (b)	73/-	73/-	73/-	73/-	73/-	72/7	74/4	71/7	75/3	73/7
New Zealand, finest white	66/-	66/3	67/-	68/-	69/6	69/3	67/4	52/7	69/6	66/6
Eggs (1).										
Antwerpen, auction: Belgian, average quality (frs. p. 100)	44.00	44.00	48.00	46.00	55.00	60.00	55.25	46.50	58.80	52.05
Denmark (c): Danish for export (crs. per quintal)	80.00	90.00	110.00	104.00	104.00	113.60	114.00	84.00	116.70	109.13
Apeldoorn (d): Dutch, average quality 57/58 gr. each (fl. p. 100)	3.25	3.10	3.45	3.70	3.50 (4)	3.92	3.25	3.67	3.85	3.77
Barneveld (e): Dutch, average quality 57/58 gr. each (fl. p. 100)	3.20	3.30	3.65	3.70	3.75	4.03	3.42	3.64	3.90	3.77
Warszawa (b): Polish, average quality, 50 gr. each (zloty p. 100)	6.00	7.65	11.00	11.00	10.75	11.06	8.68	10.29	8.31	8.11
Liverpool: Irish, extra selected (sh. p. 120)	10/9	11/3	12/9	14/3	13/6	*13/10 1/2	12/10 1/2	12/6 3/4	13/7 1/2	13/1
London, Egg Exchange (d) (shillings p. 120):										
English, National Mark, specials . . .	13/3	13/6	14/6	17/6	18/-	19/2 1/2	16/-	15/6	17/9 1/2	17/3
Belgian, 15 1/2 lb. p. 120	n. q.	n. q.	n. q.	n. q.	n. q.	n. q.	n. q.	10/-	* 11/8 1/2	* 10/3 1/4
Danish, 17 lb. p. 120	9/7 1/2	10/1 1/2	11/4 1/2	11/7 1/2	11/4 1/2	12/6	12/8	11/7 3/4	12/7 1/2	12/2 1/2
Northern Irish, specials (2)	12/1 1/2	12/6	13/6	16/6	17/3	18/0 1/4	14/11	15/8 1/2	16/8 3/4	16/7
Lithuanian, 17 lb. per 120	8/7 1/2	9/-	10/-	n. q.	n. q.	n. q.	* 10/8 1/2	9/10 1/2	* 10/10 1/2	* 10/2 1/4
Dutch, all brown, 57/60 grams each .	11/-	11/9	13/4 1/2	13/10 1/2	13/9	14/7 1/2	13/9 1/2	14/1	14/3 1/2	14/1
Polish, 53/54 grams each	n. q.	n. q.	n. q.	n. q.	n. q.	n. q.	* 8/8 1/2	n. q.	* 8/4	* 7/9 1/2
Romanian, 53/54 grams each	6/7 1/2	7/9	8/10 1/2	8/10 1/2	9/-	9/4 1/2	9/4 1/2	n. q.	8/7 1/2	* 8/5 1/2
Chinese, "violet"	n. q.	n. q.	n. q.	n. q.	n. q.	n. q.	n. q.	7/2 1/2	n. q.	* 8/11 1/2
South African, 17 lb. per 120	n. q.	n. q.	n. q.	n. q.	n. q.	n. q.	n. q.	n. q.	* 13/11 1/2	* 13/7 1/4
Australian, 16 lb. p. 120	n. q.	n. q.	n. q.	9/10 1/2	9/9	10/8 1/2	n. q.	8/3	* 12/10	* 11/8

* Indicates that the product was not quoted during part of the period under review. — n. q. = not quoted. — n. = nominal. — (a) Average prices Thursdays and Friday mornings. — (b) Average weekly prices. — (c) Average prices for weeks commencing on Thursdays. — (d) Prices on following Mondays. — (e) Thursday prices.

(1) For fixed prices of cheese in Germany see Crop Report August 1938, p. 782. — (2) Prices of 1936 cheese are compared with the yearly and monthly averages of cheese made in 1935 and 1934; prices of 1937 cheese with that of 1936 and 1935. The yearly averages refer to periods from Sept. to August. See Crop Report Jan. 1938, p. 92. — (3) Before Oct. 18, 1937, "Extra special" quality. — (4) Jan. 16: 3.90. — (5) "Red" eggs.

OCEAN FREIGHT RATES ⁽¹⁾

DESCRIPTION	WEEK ENDING ON					AVERAGE					
	Feb. 18	Feb. 11	Feb. 4	Jan. 28	Jan. 21	Jan.	Feb.	Feb.	Commercial		
	1939	1939	1939	1939	1939	1939	1938	1937	season ⁽²⁾		
Shipments of wheat and maize.											
<i>Rates in shillings per quarter:</i>											
Port Churchill to United Kingdom	n. q.	n. q.	n. q.	n. q.	n. q.	n. q.	n. q.	n. q.	*	3/11½	* 2/10 ½
Montreal to United Kingdom	n. q.	n. q.	n. q.	n. q.	n. q.	n. q.	n. q.	n. q.	*	3/3½	* 2/6
St. John to Liverpool ⁽³⁾	2/11	2/11	2/11	2/11	2/11	2/11	3/2 ½	2/11	*	3/5	* 2/10 ½
New York to Liverpool ⁽³⁾	2/11	2/11	2/11	2/11	2/11	2/11	3/2 ½	n. q.	*	3/3	n. q.
Northern Range to U.K./Continent	3/-	3/-	3/-	3/-	3/-	3/-	* 3/3	2/9	*	3/4½	* 2/9
Gulf to United Kingdom ⁽⁴⁾	3/9	3/9	3/9	3/9	3/9	3/9	3/10	n. q.		4/0½	n. q.
<i>Rates in shillings per long ton:</i>											
Danube to Antwerpen/Hamburg	n. q.	n. q.	n. q.	n. q.	n. q.	n. q.	n. q.	n. q.	*	24/1	* 20/4
Black Sea to Antwerpen/Hamburg	n. 12/-	n. 12/4½	n. 12/4½	n. q.	n. q.	n. 12/6	n. q.	n. q.	*	17/2	* 16/10
North Pacific to United Kingdom	23/7	23/6	23/2	22/10	22/10	22/8	32/8	n. 28/3		33/4	* 29/9
La Plata Down River ⁽⁵⁾ /Bahia Blanca to United Kingdom/Continent	24/-	24/-	24/-	24/-	24/-	24/-	24/4½	24/8	*	26/10	23/11
La Plata Up River ⁽⁶⁾ /Necochea to United Kingdom/Continent	25/3	25/3	25/3	25/3	25/3	25/3	25/7½	25/4		28/9	25/2
South Australia ⁽⁷⁾ to United Kingdom/Continent (in bulk)	32/-	32/-	32/-	32/-	32/-	32/-	37/7½	33/1		39/4	34/1
Shipments of rice.											
<i>Rates in shillings per long ton:</i>											
Saigon to Europe	27/4	27/4	27/3	27/3	27/3	27/1 ½	38/4	* 45/9	*	30/6	45/3
Burma to United Kingdom/Continent	25/9	25/9	25/6	n. 25/-	n. 25/-	n. 25/-	36/9	36/-	*	31/8	* 39/6

* Indicates that the rate was not quoted during part of the period under review. — n. q. = not quoted. — n. = nominal.

(1) Average rates for entire cargoes, except where otherwise stated, relating to contracts made, during periods often extending back several months, to operate during the weeks specified. — (2) Shipments of wheat and maize: Aug.-July. — (3) Rates for parcels by liners. — (4) Until Dec. 1937, rates for parcels by liners. — (5) "Down River" includes the ports of Buenos Aires, La Plata and Montevideo. — (6) "Up River" includes the ports on the Paraná River as far as San Lorenzo. Cargoes from ports beyond San Lorenzo (Colastine, Santa Fé and Paraná) are subject to an extra rate of freight. — (7) These rates refer to contracts made for shipments of wheat in bulk from South Australia (or Victoria) to the United Kingdom/Continent. They have been adjusted by the differences between the minimum rates ruling for shipments from other Australian States. The minimum rates per ton, fixed by the Tramp Shipping Administrative Committee, are: South Australia 32/-, Western Australia 31/-, New South Wales 31/6 (ex silo), 32/- (ex bags). An additional charge for bagged-wheat is fixed at 2/6 per ton in each case. — (8) Revised rates: from second half of Oct. 1938: 3/9.

AVERAGE MONTHLY PRICES IN GOLD FRANCS PER QUINTAL 1)

DESCRIPTION	Jan. 1939	Jan. 1938	Jan. 1937	DESCRIPTION	Jan. 1939	Jan. 1938	Jan. 1937
Wheat.				Cotton.			
Winnipeg: No. 1 Manitoba .	6.69	16.80	13.89	New Orleans: Middling . .	58.78	58.58	88.13
Chicago: No. 2 Hard Winter. n.	8.10	n. 11.43	15.39	Bombay (futures):			
Buenos-Aires: No. 2 Hard .	6.67	12.46	11.28	M.g. Broach, f.g.	47.11	56.25	72.70
Karachi: White Karachi . .	8.95	11.31	12.53	Alexandria:			
Liverpool and London (c.i.f.):				Sakellaridis, f.g.f.	79.93	100.23	130.90
No. 1 Manitoba (Pacific) .	8.88	19.85	16.78	Meat (dead weight).			
No. 2 Hard Winter	7.07	14.65	n. q.	<i>Beef, home-grown:</i>			
Rosafé	7.08	14.64	13.92	Paris	81.25	113.18	122.26
W. Australian (cargoes) .	7.68	13.15	15.15	London	94.35	114.18	89.23
Rye.				<i>Mutton, home-grown:</i>			
Warszawa: Home-grown. . .	8.45	13.37	12.95	Paris	160.41	182.74	213.89
Minneapolis: No. 2 rye . . .	5.50	9.04	13.44	London	98.46	110.66	112.94
Barley.				<i>Pork, home-grown:</i>			
Winnipeg: No. 4 Western .	4.90	8.56	10.97	Denmark	108.44	117.45	109.94
Minneapolis: No. 2 Feeding .	5.96	8.54	12.49	Rotterdam (live weight) .	79.59	102.30	76.26
Antwerpen: Danubian . . .	8.18	11.68	11.90	Paris (live weight)	74.23	79.42	93.19
Liverpool and London (c.i.f.):				London	117.33	124.72	115.96
No. 3 Canadian Western .	7.91	11.99	n. q.	Bacon.			
Plata	7.61	11.46	10.87	London:			
Oats.				English, No. 1, lean sizable	137.15	147.56	135.98
Winnipeg: No. 2 White . . .	5.90	11.24	10.77	Danish, No. 1, sizable . .	137.15	145.31	133.02
Chicago: No. 2 White	6.88	7.25	11.41	Butter.			
Buenos Aires: No. 2 White .	4.34	6.83	6.16	Köbenhavn: Danish	150.39	160.47	129.72
Liverpool and London (c.i.f.):				Leeuwarden: Dutch	139.70	136.39	109.36
Plata	6.13	8.63	8.47	London:			
Maize.				Danish	198.69	198.89	167.39
Chicago: No. 3 Yellow . . .	6.22	7.14	13.48	New Zealand, salted . . .	171.96	165.63	138.94
Buenos Aires: Yellow Plata.	7.05	10.12	5.96	Cheese.			
Liverpool and London (c.i.f.):				Alkmaar: Edam 40 + . . .	66.53	72.46	57.18
Yellow Plata	8.90	11.49	8.05	London:			
Rice.				English Cheddar	127.30	146.06	127.85
Rangoon: No. 2 Burma . . .	6.61	7.86	8.98	New Zealand	97.41	101.64	80.55
Saigon: No. 1 Round white.	6.91	9.28	11.16	Eggs (per 100).			
London (c.i.f.): No. 2 Burma	9.79	12.67	14.01	Denmark: Danish (per ql.)	72.47	89.59	55.88
				London:			
				English	11.44	11.47	9.44
				Danish	7.44	8.70	6.70
				Dutch	8.71	9.73	8.88

1) Extracts from tables published in the January, April, July and October issues; for method of conversion into gold francs per quintal, see these issues; for detailed specification of qualities and conditions, see "Weekly prices by products."

**INDEX-NUMBERS OF PRICES OF AGRICULTURAL PRODUCTS
AND OF COMMODITIES BOUGHT BY THE FARMER**

DESCRIPTION	Jan.	Dec.	Nov.	Oct.	Sept.	Aug.	Jan.	Jan.	YEAR	
	1939	1938	1938	1938	1938	1938	1938	1937	1937-38 (¹)	1936-37 (¹)
Germany										
(Statistisches Reichsamt; products sold by farmers)										
Average for corresponding months 1909-10/1913-14 = 100.										
Cereals	112	112	111	109	108	110	112	108	110	105
Edible potatoes	110	111	108	108	110	135	110	108	114	115
Plant products	112	112	111	109	108	116	112	108	111	107
Meat animals	95	95	94	92	93	94	94	92	95	94
Livestock products (butter and eggs)	109	108	106	104	106	110	104	103	109	108
Livestock and livestock products	100	99	97	96	97	99	97	96	99	99
Total agricultural products	103	103	102	100	100	104	101	99	102	101
Germany										
(Statistisches Reichsamt; wholesale products)										
1913 = 100.										
Foodstuffs of plant origin	116.1	115.2	114.7	114.2	113.8	116.1	115.7	113.0	115.9	115.0
Livestock	90.0	90.4	90.5	89.9	90.0	90.9	86.6	85.0	88.6	87.2
Livestock products	117.4	115.8	115.2	112.5	112.4	112.4	111.2	111.1	112.9	110.9
Feedingstuffs	108.5	108.2	107.3	106.8	107.1	106.8	107.0	105.3	107.2	106.0
Total agricultural products	107.2	107.2	106.8	105.7	105.6	106.6	105.0	103.2	105.9	104.6
Fertilizers	56.5	55.1	53.4	54.5	54.3	53.7	56.8	61.4	55.3	57.0
Agricultural dead stock	110.7	110.8	110.9	110.9	110.9	110.9	112.7	112.7	111.3	112.7
Consumption goods (¹)	135.0	135.1	135.0	135.1	135.1	135.5	135.5	130.7	135.4	133.3
Wholesale products in general	106.5	106.3	106.1	105.7	105.6	105.9	105.6	105.3	105.7	105.9
England and Wales (²)										
(Ministry of Agriculture and Fisheries)										
Average 1927-1929 = 100.										
(a) DATA UNCORRECTED FOR SEASONAL VARIATION										
Cereals and farm crops	79	76	75	77	77	82	91	106	86.5	98.5
Livestock and livestock products	99	98	98	93	86	84	101	89	88	88
Total agricultural products	95	94	94	91	84	84	99	92	90	90.5
Wholesale products in general (³)	83.3	84.2	84.3	84.9	84.3	85.3	92.3	88.2	86.9	93.1
(b) DATA CORRECTED FOR SEASONAL VARIATION										
Cereals and farm crops	80	77	75	75	77	80	91	107	86.5	98.5
Livestock and livestock products	90	88	89	88	88	90	93	82	88	88
Total agricultural products	89	86	86	86	86	89	93	86	90	90.5

(1) Household goods of all kinds, and clothing. — (2) Index-numbers taking account of payments under the Wheat Act, the Cattle Subsidy Act, and Government payments for milk. — (3) Index-numbers of the Board of Trade, reduced to 1927-1929 = 100. — (4) Agricultural year: July 1-June 30.

DESCRIPTION	Jan.	Dec.	Nov.	Oct.	Sept.	Aug.	Jan.	Jan.	YEAR	
	1939	1938	1938	1938	1938	1938	1938	1937	1938	1937
Argentina										
(Banco Central de la Republica Argentina) 1926 = 100.										
Cereals and linseed	77.4	77.2	70.9	73.2	75.3	80.1	113.8	88.6	90.5	101.3
Meat	85.4	85.7	88.0	89.6	92.8	95.0	99.6	82.3	94.6	93.6
Hides and skins	86.6	87.9	88.0	93.2	78.7	77.2	85.5	123.0	81.9	118.6
Wool	86.8	84.9	88.9	87.6	88.1	89.6	109.3	156.2	92.5	143.7
Dairy products	74.0	63.1	67.5	73.6	82.2	82.2	90.7	90.9	83.9	93.7
Forest products	101.6	100.5	100.9	100.6	100.5	98.2	98.3	97.8	100.0	98.6
Total agricultural products	80.4	80.1	76.6	78.8	79.6	83.0	108.0	99.7	90.5	105.1
Non agricultural commodities	109.2	...	108.1	108.0	107.2	107.4	113.9	106.5	...	114.4
Wholesale products in general	103.1	...	101.5	101.8	101.4	102.3	111.7	105.2	...	112.6
Australia (Commonwealth)										
(Commonwealth Bureau of Census and Statistics) 1928-29 = 100.										
Agricultural field products	78.4	78.1	...	...	78.2	83.6	91.0	101.7	93.1	98.0
Pastoral products	65.8	66.6	...	...	78.4	81.5	73.6	94.4	81.4	89.1
Farmyard and dairy products	87.7	87.4	...	...	83.4	83.5	77.4	73.3	77.8	73.1
Total agricultural products	74.2	74.4	...	...	...	...	...	...	...	...
Belgium										
(Belgische Boerenbond — Boerenbond belge) Average of corresponding months 1909-1914 = 100.										
Field products . . . . .	...	489	487	485	471	483	595	573	541	577
Livestock products . . . . .	...	719	725	734	719	699	691	583	689	617
Total agricultural products . . . . .	...	646	650	656	641	631	665	580	643	604
Rent . . . . .	...	650	650	650	650	650	650	604	650	647
Agricultural wages . . . . .	...	900	900	900	900	900	870	825	887	851
Fertilizers . . . . .	...	478	476	473	464	467	464	429	471	443
Feedingstuffs . . . . .	...	574	540	565	569	595	696	608	631	610
Total production expenses (including those not specified) . . . . .	...	751	744	748	748	754	764	724	757	736
Bohemia										
(Institute for Farm Accounting and Agricultural Economics) 1913-14 = 100										
(a) SUGARBEET REGION										
Plant products . . . . .	...	591	567	563	565	549	594	566	584	576
Livestock products . . . . .	...	575	577	562	591	563	522	573	531	550
Total agricultural products . . . . .	...	584	571	563	576	555	564	569	562	565
Total production expenses . . . . .	...	805	806	802	807	806	790	767	801	783
(b) NON-SUGARBEET REGION										
Plant products . . . . .	...	668	658	656	661	632	653	597	656	623
Livestock products . . . . .	...	556	553	551	540	515	510	572	504	539
Total agricultural products . . . . .	...	601	595	593	588	562	567	582	565	572
Total production expenses . . . . .	...	819	819	809	818	818	798	789	811	796

DESCRIPTION	Jan.	Dec.	Nov.	Oct.	Sept.	Aug.	Jan.	Jan.	YEAR	
	1939	1938	1938	1938	1938	1938	1938	1937	1938	1937
Canada										
(Dominion Bureau of Statistics, Internal Trade Branch) 1926 = 100.										
Field products (grain, etc.)	54.7	53.8	54.6	53.6	53.4	54.9	88.8	88.3	69.0	88.3
Livestock and livestock products	81.7	82.8	82.1	81.0	81.1	79.7	82.2	82.1	81.3	85.0
Total Canadian farm products	64.8	64.6	64.9	63.8	63.8	64.2	86.3	86.0	73.6	87.1
Fertilizers	82.8	82.8	82.8	82.8	82.8	82.8	75.2	74.2	78.9	74.5
Consumers' goods (other than foodstuffs, beverages and tobacco)	76.2	76.7	76.7	76.8	77.3	76.9	78.0	76.6	77.2	78.4
Wholesale products in general	73.3	73.3	73.5	74.1	74.5	76.0	83.8	81.7	78.3	84.6
Chili										
(Dirección General de Estadística) 1913 = 100										
Cereals . . . . .	...	...	560.6	603.8	600.0	590.4	517.3	464.4	...	572.3
Other plant products . . . . .	...	...	373.9	362.6	379.5	381.9	367.5	321.4	...	375.3
Meat animals . . . . .	...	...	369.7	380.4	408.0	419.3	374.3	337.7	...	381.2
Meat . . . . .	...	...	317.6	345.0	352.9	376.7	331.9	270.0	...	316.2
Total agricultural products . . . . .	...	...	424.7	435.9	446.7	448.4	410.2	361.4	...	430.0
Domestic industrial products . . . . .	...	...	473.9	478.1	482.3	479.4	464.5	455.5	...	489.4
Wholesale products in general . . . . .	...	...	508.7	513.6	519.0	519.4	505.9	477.6	...	522.6
United States										
(Bureau of Agricultural Economics) Average 1909-10 to 1913-14 = 100.										
Cereals	66	63	60	60	63	62	91	143	74	126
Cotton and cottonseed	71	70	73	72	69	69	66	107	70	95
Fruits	76	73	71	70	75	78	70	105	73	122
Truck crops (market garden crops)	96	107	98	108	98	91	101	123	105	123
Meat animals	112	109	111	111	117	115	110	128	114	132
Dairy products	109	112	109	107	104	102	128	128	109	124
Chickens and eggs	97	127	131	124	118	105	113	110	108	111
Miscellaneous	109	108	95	107	98	99	114	182	95	130
Total agricultural products	94	96	94	95	95	92	102	131	95	121
Commodities bought for use in living and production ⁽¹⁾	120	120	121	121	121	122	126	130	123	130
Agricultural wages ⁽¹⁾	117	—	—	118	—	—	111	103	116	120
United States										
(Bureau of Labor) 1926 = 100.										
Cereals	56.3	54.4	50.9	50.8	53.0	53.4	75.0	113.0	60.7	98.3
Livestock and poultry	78.0	74.4	75.2	76.2	81.0	80.6	78.5	91.4	79.0	95.5
Other farm products	63.2	66.5	67.4	65.0	64.0	62.6	66.1	84.8	64.0	77.2
Total agricultural products	67.2	67.6	67.8	66.8	68.1	67.3	71.6	91.3	68.6	86.4
Agricultural implements	93.4	93.5	93.7	95.4	95.5	95.5	96.2	93.0	95.6	94.0
Fertilizer materials	74.8	68.6	67.7	67.5	67.2	67.3	72.1	70.6	69.2	71.2
Mixed fertilizers	79.9	73.8	73.2	73.4	73.4	74.2	73.4	71.4	72.2	73.2
Cattle feed	78.9	76.6	70.5	66.5	67.6	67.0	91.6	135.4	77.0	111.5
Non-agricultural commodities . . . . .	...	79.0	79.5	79.9	80.4	80.3	82.8	84.6	80.6	86.2
Wholesale products in general	76.9	77.0	77.5	77.6	78.3	78.1	80.9	85.9	78.6	86.3

(1) 1910-1914 = 100.

DESCRIPTION	Jan.	Dec.	Nov.	Oct.	Sept.	Aug.	Jan.	Jan.	YEAR	
	1939	1938	1938	1938	1938	1938	1938	1937	1938	1937
Finland										
(Central Bureau of Statistics)										
1926 = 100.										
Cereals	90	89	91	93	94	105	110	96	110
Potatoes	100	95	89	89	118	86	66	94	70
Fodder	71	68	68	68	65	85	66	75	73
Meat	92	88	86	95	102	93	82	94	84
Dairy products	100	101	99	98	94	97	83	96	89
Total agricultural products	91	90	89	91	91	94	84	91	88
Wholesale products in general.	98	98	98	97	98	102	98	99	102
Hungary										
(Central Royal Bureau of Statistics)										
1913 = 100.										
Agricultural and livestock products.	83	84	83	87	89	85	82	83	—	—
Wholesale products in general.	94	95	94	97	99	96	94	96	—	—
Ireland										
(Department of Industry and Commerce)										
Average 1911-1913 = 100.										
Agricultural products in general.	113.0	113.9	116.3	114.1	111.4	104.1	92.1	111.2	104.9
Italy										
(Istitnto Centrale di Statistica)										
1928 = 100.										
Plant products	89.3	89.9	91.3	92.2	93.0	83.3	74.0	88.6	79.7
Livestock products	86.3	87.9	87.8	87.0	82.5	99.3	80.7	86.7	91.1
Total agricultural products	88.2	89.0	90.0	90.4	89.6	87.2	75.9	87.8	82.8
Feedingstuffs	102.3	105.1	99.8	100.5	99.4	94.8	82.9	99.6	83.6
Fertilizers, and chemicals for plant diseases	100.0	99.7	99.4	100.2	100.8	99.7	83.4	100.7	94.2
Wholesale products in general.	97.1	96.4	97.2	96.9	96.8	96.0	95.2	81.6	95.3	89.1
Lithuania										
(Lietuvos Bankas)										
1926-1929 = 100.										
Cereals	39	38	38	39	39	43	43	41	46
Cattle, fowls	53	52	53	52	52	48	45	51	49
Leather, hides, wool	53	52	51	50	49	56	60	51	60
Meat, dairy products and eggs	51	49	47	45	45	49	44	47	44
Total agricultural products	47	46	45	45	45	47	45	46	47
Wholesale products in general.	52	51	51	51	50	52	49	51	51

DESCRIPTION	Jan.	Dec.	Nov.	Oct.	Sept.	Aug.	Jan.	Jan.	YEAR	
	1939	1938	1938	1938	1938	1938	1938	1937	1937-38 (²)	1936-37 (²)
Norway										
(Kgl. Selskap for Norges Vel)										
Average 1909-1914 = 100.										
Cereals	167	167	167	167	167	166	175	166	173	154
Potatoes	150	134	130	121	117	120	216	145	188	132
Pork	133	133	133	135	134	137	119	117	117	110
Other meat	162	171	165	167	182	198	186	145	187	148
Dairy products	114	179	177	175	175	172	173	142	165	139
Eggs	179	143	153	162	154	131	128	107	124	113
Concentrated feedingstuffs	155	157	161	161	162	161	153	133	152	130
Maize	162	158	155	156	157	156	155	133	149	130
Fertilizers	93	92	89	100	100	101	101	87	95	87
New Zealand										
(Census and Statistics Office)										
Average 1909-1913 = 100.										
									1938	1937
Dairy products . . . . .	...	114.2	121.2	131.7	128.4	127.4	117.3	101.8	122.2	109.2
Meat . . . . .	...	177.8	181.9	169.0	171.1	170.3	182.4	168.7	175.3	165.1
Wool . . . . .	...	117.8	114.2	98.7	116.3	94.9	132.1	167.2	113.4	176.8
Other pastoral products . . . . .	...	90.6	89.2	93.8	93.9	89.6	113.7	141.8	96.3	153.5
All pastoral and dairy products . . . . .	...	131.7	134.9	132.5	135.6	130.0	139.1	137.4	133.8	142.3
Field products . . . . .	...	136.3	135.9	142.3	139.5	139.2	136.4	119.3	138.4	136.5
Total agricultural products . . . . .	...	131.8	135.0	132.8	135.7	130.2	139.0	136.9	133.9	142.2
Netherlands										
(Bureau of Agriculture)										
Average 1924-25 to 1928-29 = 100.										
Plant products	59	57	56	56	57	57	60	59	63	58
Livestock products	61	62	61	63	63	63	66	55	66	57
Total agricultural products	61	61	60	62	62	62	64	56	65	57
Wholesale products in general (1)	70.2	70.6	70.2	70.9	70.5	70.8	75.2	73.0	76.2	63.8
Agricultural wages	74	74	74	74	74	74	68	68	69	68
Poland										
(Central Bureau of Statistics)										
1928 = 100.										
									1938	1937
Raw plant products	36.2	36.3	35.3	35.7	35.9	38.1	50.3	46.8	43.6	53.4
Meat animals	42.3	42.4	40.9	44.4	45.7	44.1	39.7	40.8	42.1	43.5
Dairy products and eggs	50.6	52.1	53.1	48.6	46.6	41.4	50.0	45.0	47.6	48.2
Products directly sold by farmers	40.9	41.2	40.5	41.0	41.1	40.7	46.8	44.5	43.8	49.2
Flour and groats	44.2	44.7	43.7	43.7	45.1	46.7	53.2	53.4	49.1	55.9
Meat and lard-fat	48.1	47.4	46.6	48.9	50.9	49.7	48.0	45.6	48.3	48.1
Sugar, alcohol, beer	71.3	71.3	71.3	71.3	71.3	71.3	71.3	71.3	71.3	71.3
Products of agricultural industries	54.4	54.4	53.8	54.6	55.7	55.8	57.3	56.6	56.1	58.2
Total agricultural products	47.6	47.7	47.0	47.7	48.3	48.1	52.0	50.4	49.9	53.6
Commodities bought by farmers	64.5	64.4	64.3	64.5	64.6	64.7	65.7	65.7	65.0	62.2
Wholesale products in general	54.9	55.0	54.6	54.8	55.0	55.0	58.0	58.2	56.2	59.4

(1) Index-numbers calculated by the Central Statistical Bureau of the Netherlands, base 1926-1930 — (2) Agricultural year April 1-March 31. — (3) Agricultural year: July 1-June 30. — (4) Calendar year.

DESCRIPTION	Jan.	Dec.	Nov.	Oct.	Sept.	Aug.	Jan.	Jan.	YEAR	
	1939	1938	1938	1938	1938	1938	1938	1937	1938	1937
Sweden										
(Sveriges Allmänna Lantbrukssällskap)										
Average 1909-1913 = 100.										
Plant products	104	102	103	105	106	113	123	121	115	123
Meat animals.	141	132	130	132	138	143	129	129	133	126
Dairy products.	162	163	156	143	136	132	148	128	142	134
Livestock and livestock products	156	155	149	141	137	135	144	129	139	132
Total agricultural products	139	137	134	129	126	127	137	126	131	129
Feedingstuffs	144	143	142	146	140	139	140	144	140	139
Fertilizers	94	93	94	94	94	94	97	94	96	94
Building materials	180	180	180	180	176	176	189	177	182	191
Machinery and implements	204	204	204	204	225	225	217	178	218	203
Sundries	120	119	120	121	121	123	129	120	124	127
Total commodities purchased	144	143	143	145	145	145	148	140	146	145
Wholesale products in general.	134	134	134	135	134	135	143	136	137	145
Agricultural wages . . . . .	...	...	...	¹⁾ 204	¹⁾ 204	¹⁾ 204	¹⁾ 204	193	¹⁾ 204	194
Switzerland										
(Schweizerischer Bauernverband)										
1914 = 100.										
Slaughter cattle . . . . .	...	110	115	115	115	117	120	119	117	122
Slaughter pigs . . . . .	...	127	127	126	123	121	130	130	125	127
Milk (base price) . . . . .	...	121	121	121	121	119	119	112	120	118
Total agricultural products	119	120	121	119	118	121	124	121	...	125
Feedingstuffs ²⁾	108	108	106	106	107	105	102	97	105	97
Fertilizers ²⁾	100	102	102	99	99	99	92	89	96	85
Wholesale products in general ²⁾	105.7	106.1	106.1	105.8	105.5	105.4	110.0	108.3	107.1	111.2
Yugoslavia										
(National Bank of the Kingdom of Yugoslavia)										
1926 = 100.										
Plant products	86.9	85.2	81.6	84.4	88.4	83.0	87.4	66.5	85.8	74.1
Livestock products	64.1	65.7	67.2	65.6	66.1	66.1	66.7	63.5	65.8	65.1
Industrial products	76.6	76.7	75.9	75.9	76.3	76.4	80.8	74.0	78.2	77.6
Wholesale products in general.	77.5	77.5	76.7	76.8	78.0	76.8	80.2	70.4	78.3	74.7

¹⁾ Provisional data. — ²⁾ Index numbers calculated by the Bundesamt für Industrie, Gewerbe und Arbeit; base July 1914.

VARIATIONS IN THE INDEX-NUMBERS OF PRICES

The index-numbers of prices of agricultural and other products of interest to the farmer, as published by the various countries, are given in the preceding pages.

The data are often very heterogeneous and consequently great care has to be taken in drawing conclusions from the supplementary information given in the following comparative summary table.

COUNTRIES	Percentage variations in the index-numbers of prices of			
	agricultural products	all products	agricultural products	all products
	January 1939 in comparison with			
	December 1938		January 1938	
Germany (products sold by farmers)	0.0	—	+ 2.0	—
Germany (wholesale prices)	0.0	+ 0.2	+ 2.1	+ 0.9
England and Wales (a)	1.1	—	+ 4.0	—
England and Wales (b)	3.5	— 1.1	+ 4.3	— 9.8
Argentina	0.4	—	— 25.6	— 7.7
Australia	0.3	—	—	—
Canada	+ 0.3	—	—	—
United States: Bureau of Agric. Economics	2.1	— 0.0	— 24.9	— 12.5
United States: Bureau of Labor	0.6	—	— 7.8	—
Hungary	1.2	— 0.1	— 6.1	— 4.9
Netherlands	0.2	— 1.1	+ 1.2	— 0.0
Poland	0.2	— 0.6	— 4.7	— 6.6
Sweden	1.5	— 0.2	— 8.5	— 5.3
Switzerland	8.0	— 0.4	+ 1.5	— 6.3
Yugoslavia vegetable products	2.0	—	— 4.0	— 3.9
Yugoslavia animal products	2.4	— 0.0	— 3.9	— 3.4
December 1938 in comparison with				
	November 1938		December 1937	
Belgium	— 0.6	—	+ 1.4	—
Ireland	0.8	—	+ 4.3	—
Lithuania	+ 2.2	+ 2.0	+ 2.2	+ 2.0

(a) Data uncorrected for seasonal variation. — (b) Data corrected for seasonal variation.

EXCHANGE RATES

RELATION OF VARIOUS CURRENCIES TO THEIR PARITY WITH THE U. S. DOLLAR (1)

NATIONAL CURRENCIES	Parity	Actual Exchange Rates					Percentage deviation from parity with U.S. dollar: premium (+) or discount (—)				
		Feb. 17 1939	Feb. 10 1939	Feb. 3 1939	Jan. 27 1939	Jan. 20 1939	Feb. 17 1939	Feb. 10 1939	Feb. 3 1939	Jan. 27 1939	Jan. 20 1939
Germany: reichsmark	40.332	40.128	40.116	40.113	40.105	39.974	— 0.5	— 0.5	— 0.5	— 0.6	— 0.9
Argentina: paper peso	71.959	n.31.234	n.31.237	n.31.190	n.31.155	n.31.204	— 56.6	— 56.6	— 56.7	— 56.7	— 56.6
Belgium: belga	23.542	16.854	16.861	16.877	16.901	16.898	— 28.4	— 28.4	— 28.3	— 28.2	— 28.2
Belgium: belga	16.950	16.854	16.861	16.877	16.901	16.898	— 0.6	— 0.5	— 0.4	— 0.3	— 0.3
Canada: dollar	100.000	99.486	99.496	99.473	99.205	99.266	— 0.5	— 0.5	— 0.5	— 0.8	— 0.7
Denmark: crown	45.374	20.913	20.914	20.881	20.866	20.892	— 53.9	— 53.9	— 54.0	— 54.0	— 54.0
Spain: peseta	32.669	n. g.	n. g.	n. g.	n. g.	n. 4.500	—	—	—	—	— 86.2
France: franc (2)	6.633	2.647	2.646	2.644	2.640	2.641	— 60.1	— 60.1	— 60.1	— 60.2	— 60.2
Great Britain: £ sterling (2)	8.2397	4.6863	4.6860	4.6791	4.6744	4.6805	— 43.1	— 43.1	— 43.2	— 43.3	— 43.2
Hungary: pengo	29.612	n.19.630	n.19.630	n.19.642	n.19.580	n.19.655	— 33.7	— 33.7	— 33.7	— 33.9	— 33.6
India: rupee	61.798	35.012	35.014	34.951	34.936	34.959	— 43.3	— 43.3	— 43.4	— 43.5	— 43.4
Italy: lira	8.911	5.060	5.260	5.261	5.260	5.260	— 41.0	— 41.0	— 41.0	— 41.0	— 41.0
Italy: lira	5.263	5.060	5.260	5.261	5.260	5.260	— 0.1	— 0.1	— 0.0	— 0.1	— 0.1
Japan: yen	84.396	27.299	27.301	27.256	27.236	27.275	— 67.7	— 67.7	— 67.7	— 67.7	— 67.7
Netherlands: florin	68.057	53.595	53.798	53.800	53.704	54.285	— 21.2	— 21.0	— 20.9	— 21.1	— 20.2
Poland: zloty	18.994	18.882	18.902	18.906	18.906	18.904	— 0.6	— 0.5	— 0.5	— 0.5	— 0.5
Romania: leu	1.013	n. 0.726	n. 0.729	n. 0.727	n. 0.728	n. 0.726	— 28.3	— 28.0	— 28.2	— 28.1	— 28.3
Sweden: crown	45.374	24.128	24.142	24.103	24.072	24.094	— 46.8	— 46.8	— 46.9	— 46.9	— 46.9
Switzerland: franc	32.669	22.692	22.661	22.578	22.568	22.580	— 30.5	— 30.6	— 30.9	— 30.9	— 30.9
Czechoslovakia: crown	5.016	3.424	3.425	3.425	3.425	3.426	— 31.7	— 31.7	— 31.7	— 31.7	— 31.7
Czechoslovakia: crown	3.512	3.424	3.425	3.425	3.425	3.426	— 2.5	— 2.5	— 2.5	— 2.5	— 2.4

(1) Parities and current rates are both expressed in U. S. cents (the £ sterling is expressed in dollars). The dollar contains 0.88867 grams of fine gold, i. e. 49.94 % less than formerly. — (2) Former parity. — (3) New parity as from 31 March 1935. — (4) 1 Indochinese piastre = 10 francs; the actual rates vary only slightly from this. — (5) 97 1/4 Egyptian piastres = 1 £ sterling (fixed rate). — (6) New parity as from Oct. 5, 1936. — (7) New parity as from Oct. 10, 1936.

LATEST INFORMATION

TRADE

Statistics received too late for inclusion in the tables and statistics for January already available.

COUNTRIES PRODUCTS AND UNITS	EXPORTS		IMPORTS		COUNTRIES PRODUCTS AND UNITS	EXPORTS		IMPORTS	
	1938	1937	1938	1937		1939	1938	1939	1938
GREECE					FRANCE				
	Oct.	Oct.	Oct.	Oct.		Jan.	Jan.	Jan.	Jan.
Wheat 1000 centals	0	0	331	547	Wheat 1000 centals	732	39	684	679
Wheat flour "	0	0	3	3	Wheat flour "	312	177	67	50
Rye "	0	0	0	0	Rye "	0	0	2	0
Barley "	0	0	18	0	Barley "	18	0	121	202
Oats "	0	0	0	22	Oats "	0	0	7	9
Maize "	0	0	80	3	Maize "	0	0	1,722	1,487
Rice "	0	0	17	19	Rice "	11	21	329	940
Linseed "	0	0	11	13	Linseed "	0	0	338	381
Cotton "	0	0	4	4	Cotton "	26	57	609	1,100
Wool 1000 lb.	258	183	414	869	Wool 1000 lb.	5,450	3,891	48,065	29,374
Butter "	—	—	68	51	Butter "	461	340	46	101
Cheese "	15	159	101	24	Cheese "	2,965	2,108	3,622	2,134
Cacao "	—	—	326	351	Cacao "	0	0	7,350	5,216
Tea "	—	—	53	20	Tea "	0	2	287	289
Coffee "	—	—	1,217	445	Coffee "	0	0	32,845	36,665
BRAZIL					NETHERLANDS				
Wheat 1000 centals	—	—	1,704	1,696	Wheat 1000 centals	1	0	950	1,084
Wheat flour "	—	—	42	131	Wheat flour "	0	0	143	150
Maize "	48	52	—	—	Rye "	205	163	141	56
Rice "	91	51	—	—	Barley "	164	35	213	198
Cotton "	398	405	—	—	Oats "	78	68	27	148
Cacao 1000 lb.	20,792	28,583	—	—	Maize "	0	0	1,484	2,721
Coffee "	211,618	150,393	—	—	Rice "	125	145	167	119
CHINA					Linseed "	24	19	530	488
Wheat 1000 centals	22	0	0	0	Cotton "	2	1	122	154
Wheat flour "	129	0	173	78	Wool { a) 1000 lb.	117	73	871	637
Maize "	4	0	—	—	Butter "	22	46	895	331
Rice "	2	1	129	710	Cheese "	7,238	5,752	40	97
Linseed "	0	3	—	—	Cacao "	9,176	10,593	0	0
Cotton "	155	20	106	3	Tea "	55	470	13,916	13,922
Wool { a) 1000 lb.	344	679	—	—	Coffee "	18	22	2,246	2,101
Butter "	44	29	—	—		1,179	926	9,797	7,216
Tea "	7,103	7,255	203	9	POLAND-DANZIG				
	1939	1938	1939	1938	Wheat 1000 centals	126	0	0	30
GERMANY					Wheat flour "	88	51	0	0
Wheat 1000 centals	0	0	475	1,577	Rye "	555	0	0	0
Wheat flour "	0	1	118	104	Barley "	838	526	0	0
Rye "	0	0	312	131	Oats "	0	24	0	0
Barley "	0	0	607	831	Maize "	0	0	0	5
Oats "	0	0	123	164	Rice "	1	19	0	0
Maize "	0	0	534	3,227	Linseed "	0	0	0	0
Rice "	42	21	485	414	Cotton "	0	0	131	138
Linseed "	0	0	214	208	Wool 1000 lb.	4	0	3,792	2,895
Cotton "	0	0	476	711	Butter "	1,612	2,566	0	0
Wool { a) 1000 lb.	0	0	20,018	23,173	Cheese "	62	2	18	20
Butter "	0	2	2,083	2,518	Cacao "	—	—	1,151	1,398
Cheese "	108	37	4,176	6,072	Tea "	0	0	322	302
Cacao "	0	0	17,963	13,146	Coffee "	0	2	1,197	802
Tea "	15	29	1,202	1,045	UNITED KINGDOM				
Coffee "	0	0	26,425	33,116	Wheat 1000 centals	91	75	7,731	7,309
					Wheat flour "	170	195	701	716
					Barley . . . . . "	...	...	1,196	1,715
					Oats . . . . . "	...	...	189	77
					Maize "	252	171	7,308	6,566

a) Wool, greasy. — b) Wool, scoured.

COUNTRIES PRODUCTS AND UNITS	EXPORTS		IMPORTS		COUNTRIES PRODUCTS AND UNITS	EXPORTS		IMPORTS	
	1939	1938	1939	1938		1939	1938	1939	1938
UNITED KINGDOM (concluded)					CANADA				
Rice 1000 centals	9	4	122	128	Wheat 1000 centals	4,727	4,316	83	234
Linseed . . . . . " "	...	...	488	231	Wheat flour " "	744	8.0	11	19
Cotton " "	50	24	904	1,487	Rye " "	0	12	0	5
Wool 1000 lb.	20,410	20,455	123,869	83,370	Barley " "	552	489	0	0
Butter " "	1,651	875	88,254	75,487	Oats " "	290	187	151	170
Cheese " "	357	359	27,884	20,717	Maize " "	1	1	447	325
Cacao " "	2,099	1,239	37,842	23,684	Rice " "	0	0	40	35
Tea " "	4,795	4,081	51,774	50,257	Linseed " "	4	2	22	23
Coffee " "	375	802	6,746	5,644	Cotton " "	—	—	75	120
SWEDEN					Wool 1000 lb.	194	331	1,283	860
Wheat 1000 centals	20	470	40	95	Butter " "	1,362	84	0	150
Wheat flour " "	0	3	0	1	Cheese " "	1,329	355	60	66
Rye " "	0	0	6	5	Cacao " "	—	—	1,113	1,698
Barley " "	0	0	0	0	Tea " "	—	—	3,148	2,822
Oats " "	6	13	0	5	Coffee " "	66	42	4,418	4,385
Maize " "	0	0	76	306	BRAZIL				
Rice " "	—	—	10	6	Coffee 1000 lb.	156,377	206,510	—	—
Linseed " "	—	—	62	13	BURMA				
Cotton " "	—	—	65	62	Wheat 1000 centals	1	0	8	6
Wool 1000 lb.	—	—	2,127	1,510	Wheat flour " "	0	0	80	45
Butter " "	3,080	5,205	0	0	Barley " "	—	—	0	1
Cheese " "	—	—	174	148	Maize " "	15	9	—	—
Cacao " "	—	—	1,878	1,221	Rice " "	6,067	3,861	3	2
Tea " "	—	—	88	88	Linseed " "	0	0	0	0
Coffee " "	—	—	8,664	8,320	Cotton " "	33	74	0	0
SWITZERLAND					Wool 1000 lb.	22	0	0	0
Wheat 1000 centals	0	0	872	764	Butter " "	—	—	79	57
Rye " "	0	0	28	45	Cheese " "	0	0	15	11
Barley " "	0	0	172	250	Tea " "	4	7	368	492
Oats " "	0	0	307	420	Coffee " "	11	0	33	31
Maize " "	0	0	135	188	SIAM				
Rice " "	0	0	39	24	Rice 1000 centals	2,718	2,535	—	—
Cotton " "	0	0	50	91					
Wool 1000 lb.	57	11	1,338	1,878					
Butter " "	2	0	9	2					
Cheese " "	5,179	2,961	273	417					
Cacao " "	0	0	2,791	2,103					
Tea " "	0	2	137	177					
Coffee " "	0	0	2,313	2,533					

PRODUCTION

Uruguay (Telegram of February 24): According to the second official estimate, production of wheat, oats and linseed in 1938-39 compared with the final estimates for 1937-38 and the average of the five preceding years, was as follows:—

	1938-39	1937-38	Average 1932-33 to 1936-37	% 1938-39 1937-38 = 100	% 1938-39 Average = 100
(ooo centals).					
Wheat	8,832	9,945	6,611	88.8	133.6
Oats	1,572	1,065	770	147.6	204.2
Linseed	2,467	2,088	1,544	118.2	159.7
(ooo bushels).					
Wheat	14,719	16,575	11,019	88.8	133.6
Oats	4,912	3,328	2,405	147.6	204.2
Linseed	4,405	3,728	2,738	118.2	159.7

Prof. ALESSANDRO BRIZI, Segretario generale dell'Istituto, Direttore responsabile.

MONTHLY CROP REPORT AND AGRICULTURAL STATISTICS

** The following explanations refer to crop conditions quoted in the crop notes and in the tables. — Crop condition according to the system of the country: Germany, Hungary, Luxemburg and Czecho-Slovakia: 1 = excellent, 2 = good, 3 = average, 4 = bad, 5 = very bad; Finland: 8 = very good, 6 = above the average, 5 = average; France: 100 = excellent, 70 = good, 60 = fairly good, 50 = average, 30 = bad; Estonia, Latvia, Lithuania, Poland, Romania and Sweden: 5 = excellent, 4 = good, 3 = average, 2 = bad, 1 = very bad; Netherlands: 90 = excellent, 70 = good, 60 = fairly good, 50 = below average; Portugal: 100 = excellent, 80 = good, 60 = average, 40 = bad, 20 = very bad; Switzerland: 100 = excellent, 90 = very good, 75 = good, 60 = fairly good, 50 = average, 40 = rather bad, 30 = bad, 10 = very bad; U. S. S. R.: 5 = good, 4 = above the average, 3 = average, 2 = below average, 1 = bad; Canada: 100 = crop condition promising a yield equivalent to the average yield of a long series of years; United States: 100 = crop condition which promises a normal yield; Egypt: 100 = crop condition which promises a yield equal to the average yield of the last five years. — For other countries the system of the Institute is employed: 100 = crop condition which promises a yield equal to the average of the last ten years.*

See latest information on page 263 and at the end of the Crop Report.

VEGETAL PRODUCTION

World Wheat Supplies and Requirements.

The Institute has usually published in the Crop Report for March a revised review of the statistical situation of the world wheat market, examining afresh, in the light of more complete and reliable estimates, the forecasts of world wheat supplies and requirements made in the preceding October. This year, in view of the serious situation on the world wheat market, the Institute has produced a special study of the subject with the title "The World Wheat Situation in 1938-39". This study, after describing the causes of the crisis, sets out the essential features of the wheat problem and the conditions for an improvement in the market. Very detailed statistical tables are given showing the history of wheat crops and markets during recent years. A summary of the various features of the present situation is here reproduced from this publication, though this course is a departure from our usual practice.

The Wheat Area in 1938.

Sown on an area that exceeded all previous records and favoured by seasonal conditions, the wheat crop of 1938 yielded an exceptionally high outturn. The expansion of the world wheat area began during the Great War and was accelerated during the early post-War years. The expansion continued almost continuously for 15 years, from 1923 to 1938. During this period there were decreases in the cultivated area only in 1924, 1929, 1931 and 1934 but these decreases were slight and of short duration. Added together, they were hardly sufficient to offset the average annual increase. The continuity of the increase

in the wheat area is all the more striking because, during the period under review, the wheat market was shaken by one of the most severe crises it has ever experienced. The expansion in area was much more pronounced in the exporting countries, which are far more exposed to the ill-effects of overproduction than in the importing countries which can be more easily protected.

WHEAT. — *World Sown Area* ¹.

Period	World ⁽²⁾		All exporting countries			All importing countries		
	Million acres	Index Nos. ³	Million acres	Index Nos. ³	% of world total ²	Million acres	Index Nos. ³	% of world total ²
Averages:								
1909-13	210	87.4	150	82.8	71.3	60	101.7	28.7
1923-27	240	100.0	181	100.0	75.3	59	100.0	24.7
1928-32	267	111.0	204	112.7	76.5	63	105.8	23.5
1933-37	273	113.7	207	114.3	75.8	66	111.2	24.2
Year:								
1938	289	120.2	224	123.6	77.5	65	109.6	22.5

⁽¹⁾ The totals of sown areas were obtained by adding the figures of area sown in the four major exporting countries (Canada, United States, Argentina and Australia) to the figures of areas in other producing countries which generally represent harvested areas. For the latter countries, the two series of figures differ only slightly.

⁽²⁾ Excluding the U. S. S. R., China, Iraq and Iran. — ⁽³⁾ Average 1923-27 = 100.

The wheat area in 1938 exceeded the 1923-27 average by nearly 24 per cent. in the exporting countries but only by about 10 per cent. in the importing countries. The increase in the latter group was reduced by the appreciable contraction in Spain resulting from the civil war.

The four great exporting countries have contributed most to the total world increase of 49 million acres in 1938 on the 1923-27 average; over 27 million acres, or 57 per cent., more were sown in these four countries, about 16 millions, or 31 per cent. in the other exporting countries and about 6 millions, or 12 per cent., in the importing countries.

The four principal producing countries, after increasing their wheat areas from 113 to 121 million acres between 1923 and 1927, continued to expand them, despite the serious crisis which set in in 1928, in the six following years when their total area varied between 124 and 133 million acres. The sudden contraction which then took place brought the area down to 119 million acres but the contraction lasted for only the two years 1934 and 1935. This decrease was followed by a large increase when the world market showed signs of recovery. The sown area was 129 million acres in 1936, nearly 140 millions in 1937 and 141 millions in 1938. The last two figures exceeded all previous records.

A similar trend was seen in the other exporting countries. It was especially marked in the Danubian countries but was also considerable in India and North Africa.

WHEAT.— *Area sown in the four Major Exporting Countries.*

Period	United States			Canada			Argentina			Australia		
	Million acres	Index Nos. ¹	% of world total ²	Million acres	Index Nos. ¹	% of world total ²	Million acres	Index Nos. ¹	% of world total ²	Million acres	Index Nos. ¹	% of world total ²
Averages:												
1909-13.	51	82.2	24.1	10	45.1	4.7	16	85.3	7.6	8	69.8	3.6
1923-27.	62	100.0	25.7	22	100.0	9.2	19	100.0	7.8	11	100.0	4.5
1928-32.	67	109.3	25.3	26	116.2	9.6	20	108.0	7.6	16	144.0	5.9
1933-37.	71	115.6	26.1	25	113.8	9.2	18	95.0	6.6	13	120.2	4.8
Year:												
1938.	80	129.2	27.7	26	117.7	9.0	21	110.8	7.2	14	129.3	4.9
Maximum area recorded hitherto												
1937			1932			1928			1930			
81			131.5			28.6			27			
23			121.0			8.5			18			
18			166.7			6.7						

(1) Average 1923-27 = 100. — (2) Excluding the U. S. S. R., China, Iraq and Iran.

The expanding tendency in the area cultivated to wheat, though very marked in nearly all exporting countries, was much more moderate in the majority of the importing countries.

In the European importing countries as a whole, this tendency set in only in 1930. Between 1923 and 1929 the wheat area varied around 48 million acres with extremes of 46.2 millions in 1924 and 48.8 millions in 1927. It remained thus distinctly below the average level of pre-War years (50 million acres). In 1930 an appreciable expansion began. From 49.2 million acres in 1930, the area rose to 50.1 millions in 1931, to 51.8 millions in 1932, to 53.3

WHEAT.— *Area in Importing Countries.*

Period	European importing countries			Extra-European importing countries		
	Million acres	Index Nos. ¹	% of world total ²	Million acres	Index Nos. ¹	% of world total ²
Averages:						
1909-13.	50	104.7	23.6	10	89.6	5.1
1923-27.	47	100.0	19.8	12	100.0	4.9
1928-32.	49	104.1	18.5	14	113.7	5.0
1933-37.	52	110.3	19.2	14	115.8	5.0
Year:						
1938.	50	104.2	17.4	15	125.0	5.1

(1) Average 1923-27 = 100. — (2) Excluding the U. S. S. R., China, Iraq and Iran.

millions in 1933 and in 1934 and to 53.4 millions in 1935. In the last three years, however, there has been a slight decrease to 52.5 millions in 1936, 49.5 millions in 1937 and 50.2 millions in 1938. The increase in wheat cultivation was not common to all European countries. A notable exception was France where there has been a steady decline in the wheat crop, which in various districts has given way to more remunerative crops. There has been an appreciable decline also in Spain in recent years owing to the civil war. All other countries show a substantial and uninterrupted expansion since 1930. The countries which show the greatest increases between 1930 and 1938 include the United Kingdom and Ireland with an increase of 900,000 acres or 73 per cent. on 1931, Greece (740,000 acres or 53 per cent. on 1930). Germany (640,000 acres or 15 per cent. on 1930). Italy (540,000 acres or 5 per cent. on 1931) and Czecho-Slovakia (250,000 acres or 12 per cent. on 1930).

A tendency to expand wheat cultivation has also occurred in the extra-European group of importing countries. The area has grown continuously in nearly all these countries with the greatest increases in Japan (an increase of 570,000 acres on 1930) and the Union of South Africa (an increase of 820,000 acres on 1930).

Wheat Yields in 1938.

After many years of poor yields caused mainly by a succession of exceptionally unfavourable seasons in the principal exporting countries, there was a generally favourable season in 1938 which resulted in a world unit yield distinctly larger than recent averages. The provisional estimates now available indicate an average yield of 15.6 bushels per acre (sown), a level which is comparable with the best yields recorded in the last fifteen years (14.9 bushels in 1927, 15.0 bushels in 1923 and 15.2 bushels in 1928). This result is all the more remarkable because it was obtained from the largest area ever cultivated. Yields however, varied substantially from place to place. In the surplus-producing countries as a whole the yield was barely average when compared with the periods 1923 to 1927 and 1928 to 1932 and it only just exceeded the average yield of the years 1933 to 1937 which was abnormally low. In the importing countries, on the other hand, the yield was very high, exceeding the previous record of this group (1933) by 4 per cent.

Though the yield of the exporting countries as whole in 1938 was average, there were wide variations in the different groups. The four great exporting countries obtained on the whole a mediocre yield which, however, was appreciably larger than those of 1933 and the four following years. It was distinctly below the yields obtained in pre-War years and also below the yields of the years 1923 and 1932 excepting only 1925 and 1929. On the other hand, the results obtained in the European exporting group and in the other exporting countries were extremely satisfactory.

In Europe a record of 25.6 bushels to the acre was obtained, a substantial advance on the preceding record of 24.1 bushels obtained in 1933. Nearly all European countries obtained exceptionally high yields. In some countries, the

WHEAT. — *World Yields per acre* ¹.

Period	World ¹		All exporting countries		All importing countries	
	Bushels per acre ²	Index nos ³	Bushels per acre ²	Index nos ²	Bushels per acre ²	Index nos ³
Averages:						
1909-13	15.0	104.1	13.7	102.2	18.3	99.2
1923-27	14.5	100.0	13.3	100.0	18.5	100.0
1928-32	14.5	100.0	13.0	97.8	19.7	106.5
1933-37	13.4	92.8	11.0	83.1	20.7	112.1
Year:						
1938	15.6	108.2	13.4	101.1	23.2	125.8

(1) Excluding the U.S.S.R., China, Iraq and Iran. — (2) Calculated from area sown. — (3) Average 1923-27 = 100.

yields exceeded all previous records (Germany, France, Italy, Belgium, Greece, Sweden, Denmark and Norway); in others, they were equal or close to the maxima (the United Kingdom, Czecho-Slovakia, the Baltic countries, the Netherlands and Switzerland). The only exceptions to these excellent results are Portugal, where a large but not unusually heavy production was expected, and Spain, where the ravages of the civil war and a rather unfavourable season brought the yield down below average.

Wheat Production in 1938.

As a result of the increase in the cultivated area and the good yield which followed a favourable season, world wheat production in 1938 was exceptionally large. The two factors that determine the size of the crop, the area and the unit yield, worked in the same direction in 1938; this was the reverse of what had happened in previous years when a reduction in the unit yield offset an increase in the cultivated area. In 1938 the two factors did not have the same influence, the increase in area being more important than the increase in yield.

WHEAT. — *Index Numbers of World Area, Yield and Production.*

(Average 1923-27 = 100)

	Area	Yield per acre	Production
Average 1909-13	87.4	104.1	89.9
„ 1923-27	100.0	100.0	100.0
„ 1928-32	111.0	100.0	110.9
„ 1933-37	113.7	92.8	104.5
Year 1938	120.2	108.2	128.9

The extension of area was most noticeable in the exporting group where the great expansion in cultivation was the principal cause of the size of the 1938 crop. The unit yield remained stationary at the average of the years prior to 1933.

WHEAT. — *Index Numbers of Area, Yield
and Production in Exporting Countries.*

(Average 1923-27 = 100)

		Area	Yield per acre	Production
Average	1909-13	82.8	102.2	84.9
"	1923-27	100.0	100.0	100.0
"	1928-32	112.7	97.8	110.0
"	1933-37	114.3	83.1	95.1
Year	1938	123.6	100.0	124.8

The influence of the growth in area on the 1938 harvest is still more evident in the aggregate results of the four major exporting countries.

WHEAT. — *Index Numbers of Area, Yield
and Production in the four Major Exporting Countries.*

(Average 1923-27 = 100)

		Area	Yield per acre	Production
Average	1909-13	74.3	96.8	71.9
"	1923-27	100.0	100.0	100.0
"	1928-32	113.7	95.7	108.5
"	1933-37	112.2	72.0	81.1
Year	1938	124.2	89.2	111.6

It will be seen that the poor crops obtained in these countries in the five years ending in 1937 were due to the sharp reduction in the yield per acre, a reduction which completely offset the considerable increase in the cultivated area. In 1938, however, a further increase in area largely offset the effects of a mediocre yield and resulted in a crop exceeding the average by nearly 12 per cent.

In the importing countries, on the other hand, the yield per acre was the more important factor, the cultivated area having varied, on the whole, within narrow limits.

WHEAT. — *Index Numbers of Area, Yield
and Production in Importing Countries.*

(Average 1923-27 = 100)

		Area	Yield per acre	Production
Average	1909-13	101.7	99.2	100.9
"	1923-27	100.0	100.0	100.0
"	1928-32	105.8	106.5	112.9
"	1933-37	111.2	112.1	125.2
Year	1938	109.6	125.8	138.0

Thus, the large wheat production of 1938 was mainly due to a large increase in the cultivated area in the surplus-producing countries and to a high unit yield in the importing countries.

Another important feature of the 1938 wheat crop was its general abundance. The outturn exceeded the previous record in both exporting and importing groups. It was thus considerably different in its geographical contribution from the 1928 crop which was the previous record. In the earlier year only the exporting group obtained a very plentiful production, results in the importing group being good but not exceptional.

WHEAT. — World Production.

Period	World ¹		All exporting countries			All importing countries		
	Million bushels	Index Nos. ²	Million bushels	Index Nos. ²	% of world total ¹	Million bushels	Index Nos. ²	% of world total ¹
Averages:								
1909-13	3,130	89.9	2,030	84.9	64.8	1,100	100.9	35.2
1923-27	3,480	100.0	2,390	100.0	68.6	1,090	100.0	31.4
1928-32	3,860	110.9	2,630	110.0	68.1	1,230	112.9	31.9
1922-37	3,640	104.5	2,270	95.1	62.4	1,370	125.2	37.6
Year:								
1928	4,044	116.2	2,883	120.7	71.3	1,161	106.3	28.7
1938	4,490	128.9	2,980	124.8	66.4	1,510	138.0	33.6

(¹) Excluding the U. S. S. R., China, Iraq and Iran. — (²) Average 1923-27 = 100.

The 1938 crop in the group of four major exporting countries was the largest recorded since 1931 but it was rather smaller than that of 1927 and a good deal below that of 1928. In the other exporting countries, the 1938 crop was the largest ever obtained.

In the European importing countries the harvest was good and very close to the 1933 record. The year was marked by all-round abundance. Nearly all countries of the continent obtained excellent crops. Only three countries—the Netherlands, Portugal and Spain—failed to reach the average of the previous five years and the first two fell short of it by a negligible amount. The crop of Spain, owing to the special circumstances of that country and the unfavourable conditions of the season, was poor. In the absence of official statistics for the whole country, the crop is put at 120 million bushels, which is nearly 30 per cent. below the average production of the years prior to the civil war. All the other countries obtained crops exceeding the average by 10 to 20 per cent. or more. The three principal producers of the continent, France, Italy and Germany, harvested particularly satisfactory crops.

As regards extra-European countries, Egypt, Syria, the Union of South Africa and Chosen obtained good crops but results were mediocre in Japan and even more so in Manchukuo.

As regards its geographical distribution, Europe, the two Americas and Asia obtained large outturns, Africa's crop was about average and Australia's alone was mediocre.

WHEAT. — *Production by Continents.*

Period	North & Cent. America		South America		Europe		Asia		Africa		Oceania		Total
	Million bushels	Index Nos. ¹	Million bushels	Index Nos. ¹	Million bushels	Index Nos. ¹	Million bushels	Index Nos. ¹	Million bushels	Index Nos. ¹	Million bushels	Index Nos. ¹	
Averages:													
1909-13	900	74.3	180	65.4	1,360	109.4	490	98.3	102	94.2	98	68.1	3,130
1923-27	1,210	100.0	278	100.0	1,244	100.0	497	100.0	108	100.0	143	100.0	3,480
1928-32	1,288	106.4	290	104.8	1,429	114.8	536	107.6	128	118.0	189	132.4	3,860
1933-37	901	74.4	280	100.4	1,580	126.9	580	116.8	133	122.4	166	116.2	3,640
Year:													
1938	1,294	106.9	379	137.1	1,845	148.1	680	137.0	136	126.5	156	106.2	4,490

(¹) Average 1923-27 = 100.

It must be remembered that the figures indicated in the various tables take no account of the crops of two important producing countries, the U. S. S. R. and China, which represent about one third of the total world production. There is no official estimate of the 1938 crop for either of these countries. General information indicates that the crop was below average in the Soviet Union and poor in China. Even after allowance is made for this probable reduction, the world crop of 1938 is none the less very plentiful.

Exportable Supplies and World Wheat Requirements in 1938-39.

The abundance of world wheat production in 1938, aggravated by the fact that the increase was remarkably evenly distributed among the majority of both importing and exporting countries, resulted in a new disequilibrium between world wheat supply and demand during the present 1938-39 season.

The world wheat market, which in 1937-38 had been exceptionally stable, with supplies only just exceeding requirements and with stocks at a more or less normal level, was thus again thrown into disorder. The new crop surplus in the exporting countries was very much increased, while import requirements were extremely low. Consequently, very large quantities will not be absorbed but will go to swell stocks at the end of the season.

Exportable supplies in 1938-39 are much larger than in the previous five-year period, but still appreciably lower than the record average of the period 1928-29 to 1932-33. World import requirements, however, have been steadily declining.

WHEAT. — *World exportable Supplies.*

Period	Stocks at beginning of year ¹			Exportable surplus of new crop			Total exportable supplies	
	Million bushels	Index Nos. ²	% of total supplies	Million bushels	Index Nos. ²	% of total supplies	Million bushels	Index Nos. ²
Average:								
1923-24/1927-28.	322	100.0	33.5	638	100.0	66.5	960	100.0
1928-29/1932-33.	610	188.8	47.2	680	106.3	52.8	1,290	134.0
1933-34/1937-38.	545	169.4	64.9	295	46.1	35.1	840	87.4
Year:								
1938-39 (forecast)	330	103.4	28.3	850	132.3	71.7	1,180	122.6
1939-40 (forecast)	760	237.4	...	...	...	...	...	...

(¹) In the four major exporting countries, in the European exporting countries and afloat. — (²) Average 1923-24 to 1927-28 = 100.

The exportable supplies of the present season for by far the greater part consist of 1938 crop wheat. The proportion of old to new crop wheat is naturally very low, being very much less than the average of recent years. The proportion is almost identical with that of the 1928-29 season after the record crop of 1928.

WHEAT. — *Exportable Supplies by countries.*

(Million bushels)

Period	Canada	United States	Argentina	Australia	Total 4 major countries	Danube countries ¹	U. S. S. R. ²	Other countries ²	Stocks afloat	Grand Total
Average:										
1923-24/1927-28	320	197	190	110	817	53	20	30	40	960
1928-29/1932-33	389	344	209	163	1,105	83	41	22	39	1,290
1933-34/1937-38	274	110	170	145	699	61	22	33	26	840
Year:										
1938-39 (forecast)	246	301	251	128	926	154	37	26	37	1,180

(¹) Including Poland and Lithuania. — (²) Exports.

The greater part of the exportable supplies came from the four major exporting countries, although Australia has only a small surplus owing to her comparatively poor crop. Nevertheless, the exportable supplies of all the minor exporting countries together represent a very much higher proportion of the total than usual and are of record size. Since the War, only in two seasons, 1930-31 and 1931-32, have supplies in these countries approached the level forecast for the present season.

During the last commercial year, a slight reduction in exportable supplies was accompanied by a decrease in import requirements. The statistical situation

was marked by a balance between world supplies and requirements. This year, however, there is a great increase in supplies and a very modest increase in import requirements and supply thus appears to be far in excess of demand. During the first six months of the current year (August 1, 1938—January 31, 1939), for which official figures are now available, total net exports of the surplus-producing countries were 303 million bushels, an increase of 38 millions on the corresponding period of last year. Thus the exportable balance in these countries on February 1, 1939, appears very large and more than double the balance held on February 1, 1938.

Exportable Supplies of Wheat on February 1, 1939.¹

(Million bushels)

COUNTRIES	Year 1937-38			Year 1938-39		
	Total exportable supplies	Net exports from August 1 to January 31	Remainder on February 1	Total exportable supplies	Net exports from August 1 to January 31	Remainder on February 1
Canada	88	59	29	246	93	153
United States	179	47	132	301	45	256
Argentina	102	28	74	251	32	219
Australia	160	40	120	128	40	88
U. S. S. R.	43	33	10	37	²⁾ 33	4
European exporting countries . . .	58	37	21	154	50	104
North Africa, India and others . .	41	21	20	26	10	16
<i>Total . . .</i>	<i>671</i>	<i>265</i>	<i>406</i>	<i>1,143</i>	<i>303</i>	<i>840</i>

(1) Supplies afloat excluded. — (2) Partly estimated.

Against these heavy exportable supplies, the probable import requirements are estimated to be very limited, only slightly exceeding the very small average of the last five seasons.

European imports, even taking into account a supplementary demand for the constitution and building up of reserves, are forecast as hardly larger than last year, while those of the extra-European countries are estimated as definitely less than the average but considerably larger than the very limited imports of last season. In Europe the proportion of wheat imported to total supplies for consumption and carry-over continues at a very low level, due to the abundance of home production and to economic and political influences restricting international trade. This proportion, which oscillated around 40 per cent. before the crisis, fell to an average of 35 per cent. in 1928-29 to 1932-33, to 25 per cent. in 1933-34 to 1937-38 and is forecast to remain at this low level in 1938-39.

The revised estimate of the import requirements of the European importing countries, at 430 million bushels, differs only slightly from the 415 millions estimated last October. No substantial changes in the earlier figures were necessary with the exception of France, for which, instead of net exports of 11 millions, we now estimate net imports of 7 millions.

WHEAT. — *World Import Requirements.*

Period	European importing countries ¹			Extra-European importing countries ²			World import requirements ³	
	Million bushels	Index Nos. ⁴	% of world require- ments	Million bushels	Index Nos. ⁴	% of world ments re- quire-	Million bushels	Index Nos. ⁴
Average:								
1909-10/1913-14.	565	92.0	83.0	115	66.6	17.0	680	86.4
1923-24/1927-28.	610	100.0	78.0	170	100.0	22.0	780	100.0
1928-29/1932-33.	570	93.4	74.6	195	112.8	25.4	765	97.7
1933-34/1937-38.	390	63.6	71.8	150	88.5	28.2	540	69.1
Year:								
1938-39	430	71.0	75.6	140	80.9	24.4	570	73.1

(1) Total net imports. — (2) Obtained by deducting the demand of the European importing countries from the world import demand. — (3) Total net exports of the exporting countries with an allowance for quantities afloat at the beginning and end of each commercial year.

Out of a probable demand of 430 million bushels for the whole year, net imports during the first six months for all importing countries reached 214 million bushels against 194 millions in the same period last year. In the last six months of the year there remain to be imported 216 million bushels against 211 millions in 1937-38.

The estimate of the demand of the extra-European countries has been raised slightly to 140 million bushels, against an October estimate of 125 millions, to allow for the recovery which set in recently on the Far Eastern markets.

Probable Net Imports of Wheat into Europe in 1938-39

(Million bushels)

COUNTRIES	Probable total net imports in 1938-39		Net imports from August 1 1938 to January 31 1939	Remainder to be imported from February 1 to July 31 1939
	October forecast	March estimate		
United Kingdom and Ireland	240	230	111	119
Belgium	42	40	17	23
Germany (including Austria).	35	45	31	14
Netherlands	28	28	15	13
Switzerland	18	18	10	8
Greece	16	13	5	7
Italy	16	16	3	13
Spain and Portugal.	10	13	2) 7	6
France	1) 11	7	3	4
Denmark	10	7	3	4
Finland, Estonia and Latvia	6	4	2	2
Norway and Sweden	3	7	5	2
Czecho-Slovakia, Albania, Malta, etc.	2	2	1	1
<i>Total, net imports</i>	<i>415</i>	<i>430</i>	<i>214</i>	<i>216</i>

(1) Net exports, deducted from the total. — (2) Estimate.

The surplus of exportable stocks which cannot be absorbed this season will be carried over to the 1939-40 season. It is estimated that the addition that will be made to the stocks of the four large exporting countries will be 390 million bushels and to the stocks of the European exporting countries 40 million bushels, so that on August 1, 1939 these surplus stocks (including stocks afloat, but excluding the minimum carry-over) will total 610 million bushels against 175 million on the same date last year; this quantity is about as large as the record carry-over of 1933.

WHEAT. — *Supplies, Requirements and Carry-over.*

	World exportable supplies	World import requirements		Stocks of exporting countries at end of season ¹	
	million bushels	million bushels	% of exportable supplies	million bushels	% of exportable supplies
Average 1923-24 to 1927-28.	960	780	81.0	180	19.0
» 1928-29 to 1932-33.	1,290	765	59.0	525	41.0
» 1933-34 to 1937-38.	840	540	64.0	300	36.0
Year 1938-39 (forecast)	1,180	570	49.0	610	51.0

(1) Stocks of four major exporting countries, European exporting countries (excluding minimum carry-over of about 160 million bushels) and quantities afloat.

The steadily increasing disequilibrium between world wheat supply and demand should be noted. Imports, which on the average absorbed 81 per cent. of exportable supplies in the 1923-24 to 1927-28 period, only took 59 per cent. in 1928-29 to 1932-33, and 64 per cent. in the last five-year period but they are expected to absorb only 49 per cent. in the current season. Exportable supplies in the present season are thus more than twice as large as the average import requirements of the last six years.

The absorption of the heavy surplus from the exceptionally large crop of 1938 will be neither easy nor rapid. Even assuming that competition

WHEAT. — *Consumption.*

Period	Europe			4 major exporting countries			Other countries			World consumption ¹	
	Million bushels	Index Nos. ²	% of world total	Million bushels	Index Nos. ²	% of world total	Million bushels	Index Nos. ²	% of world total	Million bushels	Index Nos. ²
Average:											
1909-10/1913-14	1,820	100.0	55.1	780	91.8	23.7	700	90.5	21.2	3,300	95.8
1923-24/1927-28	1,820	100.0	52.8	850	100.0	24.8	770	100.0	22.4	3,440	100.0
1928-29/1932-33	1,940	106.9	51.5	970	113.8	25.8	860	111.0	22.7	3,770	109.5
1933-34/1937-38	1,940	106.7	51.6	930	109.1	24.8	890	115.2	23.6	3,760	109.2
Year:											
1938-39 forecast	1,990	109.5	51.0	950	111.6	24.4	960	124.3	24.6	3,900	113.4

(1) Excluding the U. S. S. R., China, Iraq and Iran. — (2) Average 1923-24 to 1927-28 = 100.

and the fall in prices on the world market will have the effect of increasing consumption, particularly in developing alternative uses of wheat, the experience of the period of low prices from 1928-29 to 1933-34 shows that this increase is hardly likely to exceed 140-180 million bushels.

Even if world consumption could reach 3,900 million bushels, which would be 140 million bushels higher than the average of the last two half decades and 20 millions more than the record figures of 1931-32 and 1932-33, the absorption of the 1938-39 surplus would not be complete and there would still be a very heavy carry-over at the end of the season.

WHEAT. — *World Supplies, Consumption and Stocks.*

		Supplies ¹ , ²	Consumption ¹	Stocks ³
		(million bushels)		
Average	1923-24/1927-28	4,060	3,440	620
"	1928-29/1932-33	4,750	3,770	980
"	1933-34/1937-38	4,550	3,760	790
Year	1938-39 (forecast)	5,080	3,900	1,180

(1) Excluding the U. S. S. R., China, Iraq and Iran. — (2) Annual production plus Soviet exports, plus stocks at beginning of season, minus exports to China. — (3) At end of season.

World stocks, consisting of forecasts of stocks in exporting countries, and only rough estimates for stocks in the importing countries, are calculated to amount on August 1, 1939 to exactly the same figure (1,180 million bushels) as the record carry-over of 1934.

The Condition of the Standing Crops.

The weather conditions in Europe in February and the first part of March was generally favourable for the cereal crops and their condition in the middle of the latter month was considered satisfactory in all countries. In France and Belgium, where considerable proportions of the wheat crops were destroyed by the frosts of the second half of December, it was possible to make extensive resowings but it appears certain that the areas of winter wheat for harvest in these two countries will be smaller than those indicated in the table of sown areas.

The winter wheat area in the whole of Europe is probably about equal to what it was last year. Spring work is proceeding under good conditions on the whole.

At mid-march there was a sudden return of winter conditions with severe cold in all parts of Europe but heavy and widespread falls of snow have apparently saved the crops from serious damage in most parts.

The vague indications on the U. S. S. R. seem to indicate that the crops in the south suffered from drought in the autumn and that recent changes in temperature were not a favourable influence.

Weather conditions from mid-February to mid-March in the United States continued favourable east of the Mississippi and on the Pacific Coast. Snow

Area sown to Winter Cereals, in thousand acres.

(The years indicated are those of the harvest)

COUNTRIES	WHEAT			RYE			BARLEY			OATS		
	1939	% 1939		1939	% 1939		1939	% 1939		1939	% 1939	
		1938 = 100	1933 to 1937 = 100		1938 = 100	1933 to 1937 = 100		1938 = 100	1933 to 1937 = 100		1938 = 100	1933 to 1937 = 100
Germany 1) . .	4,714	103.0	96.9	10,186	97.8	92.5	1,347	105.3	143.8	—	—	—
Belgium	446	104.2	113.9	375	98.5	91.7	58	99.0	82.3	—	—	—
Bulgaria	3,025	105.3	102.2	423	97.1	94.2	461	106.8	103.5	—	—	—
France 2) . . .	12,249	99.2	95.8	1,604	98.9	96.0	503	106.0	112.3	2,274	101.8	107.8
Italy	12,635	104.0	102.2	—	—	—	—	—	—	—	—	—
Latvia	180	108.0	98.1	724	103.0	110.7	—	—	—	—	—	—
Lithuania . . .	361	101.6	93.0	1,278	98.6	104.1	—	—	—	—	—	—
Poland	3,835	100.9	103.1	14,689	101.2	103.7	52	99.8	74.8	—	—	—
Romania	8,649	98.3	115.8	939	79.8	97.4	175	87.6	87.8	—	—	—
Unit. Kingdom:												
Engl. and W.	1,664	92.1	96.4	—	—	—	—	—	—	—	—	—
Czecho-Slov. 3)	1,410	98.9	—	1,642	98.9	—	13	96.9	—	—	—	—
Canada	799	98.0	119.5	596	102.4	96.6	—	—	—	—	—	—
United States . .	46,173	81.9	94.8	7,171	107.5	117.4	—	—	—	—	—	—
India 4)	32,292	101.5	98.3	—	—	—	—	—	—	—	—	—
Egypt	1,503	102.2	103.4	—	—	—	272	99.3	75.8	—	—	—
Tunisia	2,125	128.7	113.3	—	—	—	1,236	166.7	107.5	86	112.9	122.6

1) Not including Austria. — 2) Sowings at January 1, 1939. — 3) Territories delimited by the 1938 agreements
 — 4) First estimate.

fell in Kansas and brought an improvement in some parts of this State but in west Kansas and most of Oklahoma prospects were still mediocre. The Department of Agriculture's enquiry as to farmers' spring sowing intentions indicates a substantial reduction in the spring wheat area. The decrease is 4 million acres compared with last year, and 3 million acres compared with the 1933-37 average. The percentage decline from last year is practically the same as that returned for winter wheat. The total wheat area sown in the United States is thus approximately 65,700,000 acres against 79,870,000 acres last year and a 1933-37 average of 71,210,000 acres.

The outlook in India points to an almost normal production but certainly below last year's. The winter in Japan was unfavourable for wheat.

Crop news from French North Africa is very good, the cereals having benefited from rains and showing good prospects. The wheat crop of Egypt, which is more extensive than last year's and the average, is progressing regularly.

As regards sowing preparations in the Southern Hemisphere, soil conditions, as a result of heavy and widespread rains, are favourable in most of the principal wheat areas of Argentina and Australia.

G. CAPONE.

Current information from various countries on Wheat, Rye, Barley and Oats.

Europe.

Belgium: Weather was cold in the early part of February but turned milder in the second half. Most of the winter wheat area had to be resown owing to the exceptionally severe frosts of December. The other winter cereals—rye and spelt—look well. The first oat sowings were effected at the end of February.

According to the most recent estimate, the area cultivated to spelt for harvest in 1939 is 24,200 acres against 24,500 in 1938 and 32,100 on the average of the five years ending 1937; percentages, 99.0 and 75.5. Corresponding figures for meslin are 4,250, 4,460 and 8,034 acres; percentages, 95.3 and 52.9.

Bulgaria: The average temperature in February was rather above normal. Cereals have wintered well and crop condition at the beginning of March was very good.

Moisture and rather hot weather were very favourable for the sowing of spring cereals.

According to the most recent estimate, the area cultivated to spelt in 1938 was about 26,080 acres against 19,070 in 1937 and 27,580 on the average of the five years ending 1936; percentages, 136.8 and 94.6. The corresponding production is estimated at about 243,700 centals against 195,000 and 240,400; percentages, 125.0 and 101.4.

Estonia: In February the day temperature remained above freezing point and there was frost only at night. Precipitation was very light during the month and in some districts there was none at all. Flooding from melting snow did a little damage in low-lying areas, but crop condition on the whole was satisfactory.

Finland: In February the temperature was the highest recorded for this month for many years.

France: In the first fortnight of February there were five sunny days with night frosts, while in the second fortnight and the first fortnight of March the weather was more variable, with rain and occasional snow. Field work has made fairly normal progress, although rather frequently interrupted since the middle of February by the inclement weather. At the end of February most of the resowing of wheat with mid-season or so-called alternative varieties had been finished. Nevertheless, there remained a certain area to be resown with spring wheat or minor cereals. Frosts at the beginning of February in some cases aggravated the damage done by the frosts of the end of December. At the end of February the condition of crops that had survived the frost and of the newly sown crops was satisfactory. On March 15, however, there was felt in all areas a need for warmer weather. In the south, weather conditions permitted the sowing of spring oats from the end of February.

Greece: Rain at the end of February and at the beginning of March was very favourable for the growth of cereals.

Hungary: During the three weeks from February 8 to March 1, exceptionally mild weather prevailed. There were, however, frequent night frosts. Precipitation was below average in about two-thirds of the country. The weather was generally favourable for ploughing for spring sowing. In some areas the sowing of spring wheat, rye and barley had actually begun.

Winter cereals were on the whole in good condition. Late-sown winter wheat was, however, thin in some districts. Minor local damage by night frosts was reported.

Area and Production of Wheat.

COUNTRIES	† AREA					† PRODUCTION							
	1938 and 1937-38		Aver. 1932 to 1936 and 1937-38	% 1938 and 1937-38	Aver. 1932 to 1936 and 1937-38 = 100	1938 and 1937-38		Average 1932 to 1936 and 1937-38	1938 and 1937-38		Average 1932 to 1936 and 1937-38	% 1938 and 1937-38	Aver. 1932 to 1936 and 1937-38 = 100
	1938-39	1937-38	1932-33 to 1936-37	1937 and 1937-38 = 100		1938-39	1937-38	1938-39	1937-38	1932-33 to 1936-37	1937 and 1937-38 = 100		
	ooo acres					ooo centals			ooo bushels				
*Albania		99	96	103.2	92.8	122,976	98,474	106,854	204,956	164,120	178,086	124.9	115.1
Germany	5,037	4,879	5,430	107.6	107.6	9,724	8,682	8,360	16,207	14,469	13,933	112.0	116.3
Austria	619	642	575	96.4	107.6	12,034	9,330	9,535	20,056	15,550	15,891	129.0	126.2
Belgium	428	425	392	100.7	109.3	47,392	38,946	30,174	78,986	64,909	50,289	121.7	157.1
Bulgaria	3,449	3,234	3,003	106.7	114.9	10,141	8,113	7,359	16,902	13,521	12,265	125.0	137.8
Denmark	324	319	279	101.4	116.1	1,883	1,672	1,481	3,139	2,786	2,469	112.6	127.1
*Spain			11,165			4,784	4,599	2,006	7,973	7,665	3,343	104.0	238.5
Estonia	172	168	152	102.4	113.2	1,883	1,672	1,481	3,139	2,786	2,469	112.6	127.1
Finland	291	279	131	104.4	221.2	4,784	4,599	2,006	7,973	7,665	3,343	104.0	238.5
France	12,502	12,591	13,281	101.8	101.8	207,235	154,705	188,875	345,385	257,837	314,785	134.0	109.7
Greece	2,129	2,117	1,866	100.6	114.1	21,681	18,030	14,142	36,135	30,049	23,569	120.3	153.3
Hungary	4,006	3,665	3,936	109.3	101.8	58,070	43,295	47,719	96,782	72,157	79,531	134.1	121.7
Ireland	230	220	117	104.6	197.4	4,439	4,194	2,537	7,398	6,990	4,228	105.8	175.0
Italy	12,426	12,782	12,421	97.2	100.0	178,394	177,772	157,906	297,317	296,280	263,171	100.4	113.0
Latvia	348	339	316	102.9	110.2	4,231	3,781	3,823	7,052	6,302	6,372	111.9	110.7
Lithuania	501	521	511	96.2	98.0	5,540	4,865	5,556	9,233	8,109	9,259	113.9	99.7
Luxemburg	57	46	38	123.5	148.3	1,098	724	597	1,830	1,206	996	151.7	183.8
Malta	10	9	10	103.7	102.6	177	196	160	296	326	266	90.6	111.1
Norway	86	79	47	109.1	183.2	1,582	1,498	801	2,637	2,497	1,334	105.6	96.7
Netherlands	321	318	351	100.9	91.3	9,083	7,569	9,395	15,138	12,615	15,657	120.0	197.7
Poland	4,344	4,184	4,295	103.8	101.1	47,882	42,465	42,965	79,802	70,774	71,607	112.8	111.4
Portugal	1,219	1,353	1,353	107.5	119.8	9,921	8,801	11,316	16,534	14,668	18,860	112.7	87.7
Romania	9,435	8,777	7,876	107.5	119.8	106,295	82,896	57,159	177,154	138,157	95,263	128.2	186.0
Un. Kingdom:													
England & W.	1,830	1,732	1,637	105.7	111.8	41,552	31,203	33,273	69,253	52,005	55,455	133.2	124.9
Scotland	92	100	85	92.3	103.8	2,330	2,509	2,146	3,883	4,181	3,577	92.9	108.6
N. Ireland	6	4	7	126.9	81.8	128	99	162	213	164	269	129.7	79.2
Sweden	759	734	704	103.4	107.1	18,111	15,432	14,816	30,184	25,720	24,693	117.4	122.2
Switzerland	177	174	156	101.5	113.1	3,657	3,710	3,029	6,096	6,184	5,048	98.6	120.8
Czechoslovakia	2,218	2,108	2,276	105.3	97.5	39,425	30,760	35,327	65,708	51,266	58,877	128.2	116.6
Yugoslavia	5,262	5,263	5,147	100.0	102.2	66,799	51,744	47,866	111,329	86,238	79,775	129.1	139.6
Total Eur. \$	68,278	66,928	66,932	102.0	102.8	1,036,564	856,064	845,339	1,727,578	1,426,745	1,408,868	121.1	122.6
*U.S.S.R. (w)	37,306	36,797	32,374	101.4	115.2	...	...	...	617,824	...	...	...	...
(s)	63,300	64,450	58,655	98.2	107.9	...	...	...	...	...	1,029,686	...	...
Canada	25,930	25,570	25,376	101.4	102.2	210,006	108,126	180,235	350,010	180,210	300,391	194.2	116.5
United States (w)	49,711	46,978	34,411	105.8	144.5	411,982	411,494	274,976	686,637	685,824	458,294	100.1	149.8
States (s)	20,510	17,444	15,743	117.6	130.3	146,498	113,911	95,597	244,164	189,852	159,329	128.6	153.2
Mexico	1,306	1,203	1,181	108.6	110.6	8,055	6,352	6,842	13,425	10,587	11,404	126.8	117.7
Total N. Am.	97,457	91,195	76,711	106.9	127.0	776,541	639,883	557,650	1,294,236	1,066,473	929,418	121.4	139.3
*China	42,617	49,891	49,891	104.3	108.0	...	381,875	494,270	636,446	823,767	823,767	104.3	108.0
Cyprus	191	184	177	104.3	108.0	1,210	1,327	1,122	2,017	2,211	1,871	91.2	107.8
Chosen	845	839	800	100.8	105.7	6,239	6,145	5,394	10,399	10,242	8,990	101.5	115.7
India	35,635	33,215	34,128	107.3	104.4	241,472	218,445	209,664	402,453	364,075	349,440	110.5	115.2
Iraq	3,250	2,437	2,437	101.4	116.0	27,147	30,247	25,766	45,244	50,410	42,943	89.8	105.4
Japan	1,777	1,752	1,532	101.4	116.0	18,071	19,668	19,694	30,117	32,780	32,823	91.9	91.8
Manchukuo	2,967	2,854	2,854	100.0	100.0	2,809	1,592	1,592	4,682	2,654	1,765	135.6	158.2
*Palestine	558	489	489	100.0	100.0	14,015	10,336	8,859	23,358	17,227	14,765	100.0	100.0
Syria & Leb.	1,412	1,373	1,262	102.8	111.9	2,491	2,491	1,285	4,152	2,142	1,212	100.0	100.0
*Transjordan	...	...	...	...	...	96,257	79,793	60,128	160,424	132,985	100,212	120.6	160.1
Turkey	8,267	8,038	8,038	100.0	100.0	404,411	365,967	330,627	674,012	609,930	551,044	110.5	122.3
Total Asia \$	51,094	48,597	48,791	105.1	104.7	2,589,687	2,171,824	2,056,879	4,316,100	3,619,670	3,428,094	119.2	125.1
Algeria	4,101	4,311	4,036	95.1	101.6	20,965	19,925	20,169	34,941	33,208	33,614	105.2	103.9
Egypt	1,470	1,421	1,512	103.5	97.3	27,560	27,226	26,249	45,933	45,376	43,747	101.2	105.0
It. East Afr.:	...	...	...	...	...	...	...	...	...	...	...	...	...
*Brit. East Afr.:	...	...	...	...	...	...	...	...	...	...	...	...	...
Kenya	63	57	45	109.8	139.2	550	371	306	916	619	509	148.0	179.8
*Libya	156	102	55	152.3	284.1	380	181	131	633	301	301	100.0	100.0
F. Morocco	2,906	3,027	3,150	96.0	92.3	12,886	12,537	15,448	21,476	20,895	25,746	102.8	83.4
Tunisia	1,495	2,429	1,868	61.5	80.0	8,378	10,582	7,848	13,962	17,637	13,081	79.2	106.7
Total N. Afr.	10,035	11,245	10,611	89.2	94.6	70,339	70,641	70,020	117,228	117,735	116,997	99.6	100.5
Argentina	19,220	17,996	108.6	116.0	116.0	191,803	110,882	139,002	319,665	184,799	231,665	173.0	138.0
*Chile	2,045	1,890	1,905	108.2	107.4	...	18,237	18,552	...	30,394	30,920	92.2	138.7
Uruguay	1,342	1,375	1,097	97.6	122.3	9,173	9,945	6,611	15,288	16,575	11,019	92.2	138.7
Un. S. Afr. \$	2,084	1,751	1,804	119.0	115.5	10,256	6,094	9,309	17,093	10,157	15,514	168.3	110.2
Australia	14,068	13,735	13,497	102.4	104.2	90,600	112,354	98,321	151,000	187,256	163,869	80.6	92.1
*N. Zealand	186	257	...	...	...	...	3,626	5,046	...	6,043	8,410	...	...
TOTALS \$	265,226	254,046	236,899	104.4	112.0	2,589,687	2,171,824	2,056,879	4,316,100	3,619,670	3,428,094	119.2	125.1

See notes on page 196.

Area and Production of Rye.

COUNTRIES	† AREA					† PRODUCTION									
	1938 and 1938-39	1937 and 1937-38	Average 1932 to 1936 and 1932-33 to 1936-37	% 1938 and 1938-39		1938 and 1938-39	1937 and 1937-38	Average 1932 to 1936 and 1932-33 to 1936-37	1938 and 1938-39	1937 and 1937-38	Average 1932 to 1936 and 1932-33 to 1936-37	% 1938 and 1938-39			
				1937 and 1937-38 = 100	Aver. = 100							1937 and 1937-38 = 100	Aver. = 100		
ooo acres					ooo centals					ooo bushels					
*Albania. . .		9	7	...	...		84	76		151	136	...	...
Germany . . .	10,535	10,270	11,129	102.6	94.7	189,736	152,488	174,443	338,814	272,300	311,507	124.4	108.8		
Austria . . .	886	891	944	99.5	93.9	13,089	9,425	13,094	23,373	16,830	23,383	138.9	100.0		
Belgium . . .	381	376	446	101.4	85.3	8,489	7,606	9,889	15,158	13,583	17,659	111.6	85.8		
Bulgaria . . .	465	521	495	89.1	93.9	4,145	5,257	4,604	7,402	9,387	8,221	78.9	90.0		
Denmark . . .	358	344	349	104.2	102.6	6,393	5,538	5,427	11,417	9,889	9,691	115.4	117.8		
*Spain . . .		1,457						11,809			21,087				
Estonia . . .	365	368	359	99.2	101.7	4,146	4,663	4,229	7,403	8,327	7,552	88.9	98.0		
Finland . . .	607	597	579	101.7	104.8	8,223	9,510	7,737	14,684	16,982	13,816	86.5	106.3		
France . . .	1,640	1,639	1,687	100.1	97.2	17,732	16,307	17,889	31,665	29,119	31,944	108.7	99.1		
Greece . . .	178	169	175	105.3	101.6	1,366	1,439	1,253	2,439	2,569	2,238	94.9	109.0		
Hungary . . .	1,555	1,499	1,592	103.7	97.7	17,218	13,622	16,699	30,747	24,325	29,820	126.4	103.1		
Ireland . . .	2	2	3	96.8	70.7	30	31	43	53	55	77	96.4	69.2		
Italy . . .	257	259	276	99.2	93.2	3,045	3,193	3,370	5,437	5,701	6,018	95.4	90.3		
Latvia . . .	709	713	640	99.5	110.8	8,349	9,291	7,568	14,909	16,592	13,514	89.9	110.3		
Lithuania . .	1,305	1,259	1,223	103.7	106.7	13,751	13,381	13,120	24,555	23,894	23,428	102.8	104.8		
Luxemburg . .	18	16	20	114.8	91.3	284	219	282	508	392	504	129.6	100.8		
Norway . . .	13	15	15	91.0	87.1	242	248	253	433	443	453	97.7	95.6		
Netherlands .	585	563	471	104.0	124.4	11,905	10,660	9,679	21,259	19,036	17,285	111.7	123.0		
Poland . . .	14,571	14,138	14,190	103.1	102.7	159,911	124,293	143,869	285,556	221,953	256,909	128.7	111.2		
*Portugal . .		348	369				2,107	2,404		3,763	4,293				
Romania . . .	1,190	1,083	946	109.9	125.8	11,402	9,950	7,498	20,362	17,769	13,389	114.6	152.1		
Un. Kingdom: Engl. and Wales . . .	16	12	15	135.4	108.3	240	157	212	428	280	378	152.9	113.1		
Sweden . . .	498	524	551	95.0	90.3	8,922	9,100	9,671	15,933	16,250	17,269	98.0	92.3		
Switzerland . .	38	37	40	100.5	92.8	717	726	737	1,281	1,296	1,316	98.8	97.3		
Czecho-Slo- vakia . . .	2,510	2,413	2,535	104.0	99.0	37,038	32,730	39,064	66,139	58,447	69,757	113.2	94.8		
Yugoslavia . .	627	628	619	99.9	101.3	5,007	4,616	4,636	8,941	8,243	8,279	108.5	108.0		
Total Europe .	39,309	38,336	39,299	102.6	100.0	531,380	444,450	495,266	948,896	793,662	884,407	119.6	107.3		
*U. S. S. R. (w) (s) . . .	4) 50,284	4) 56,486	5) 59,002	89.0	85.2	...	...	6) 477,119	...	...	6) 852,001	...	...
—	...	...	923	...	...	...	...	6) 6,246	...	...	6) 11,154	...	...
Canada . . .	741	894	677	83.0	109.5	6,153	3,232	3,499	10,988	5,771	6,248	190.4	175.9		
United States . . .	3,979	3,846	2,944	103.5	135.2	30,822	27,905	18,125	55,039	49,830	32,366	110.5	170.1		
Total N. Am. .	4,720	4,740	3,621	99.6	130.4	36,975	31,137	21,624	66,027	55,601	38,614	118.7	171.0		
Turkey . . .	...	835	743	...	...	11,910	7,435	6,045	21,267	13,277	10,795	160.2	197.0
—															
Algeria . . .	5	3	3	144.1	147.9	25	21	16	44	37	29	119.4	150.9		
*French Morocco . . .	...	9	4	...	...	...	16	14	...	28	25	...	...
—															
Argentina . .	9) 2,254	9) 2,184	9) 1,896	103.2	118.9	6,063	1,973	5,373	10,826	3,523	9,594	307.3	112.8		
—															
*U. of S. Afr. (g)	...	...	5) 121	...	...	...	406	6) 492	...	6) 725	878	...	...
TOTALS . . .	47,123	46,098	45,562	102.2	103.4	586,353	485,016	528,324	1,047,060	866,100	943,439	120.9	111.0		

See notes on page 196.

Area and Production of Meslin.

COUNTRIES	† AREA					† PRODUCTION								
	1938	1937	Average 1932 to 1936	% 1938		1938	1937	Average 1932 to 1936	1938	1937	Average 1932 to 1936	% 1938		
				1937	Aver.							1937	Aver.	
= 100	= 100	= 100	= 100											
ooo acres					ooo centals			ooo bushels						
Germany. . .	1,459	1,471	1,072	99.2	136.1	28,251	25,359	17,325	48,710	43,722	29,871	111.4	163.1	
Austria. . .	12	29	22	41.4	54.5	231	320	263	399	551	454	72.4	87.9	
Belgium. . .	4	6	6	71.5	73.8	90	118	97	156	204	167	76.3	93.0	
Bulgaria. . .	258	404	214	63.9	120.3	2,945	4,756	2,266	5,078	8,199	3,907	61.9	130.0	
Denmark. . .	746	764	814	97.7	91.6	17,637	16,619	17,137	30,409	28,653	29,546	106.1	102.9	
Spain. . .	...	...	6)	109	...	...	...	6)	623	...	...	6)	1,075
Estonia. . .	209	199	192	105.1	108.8	2,460	1,991	1,814	4,242	3,433	3,129	123.6	135.6	
Finland. . .	21	21	37	99.3	57.4	309	319	535	532	550	923	96.8	57.7	
France. . .	198	180	187	109.9	105.8	2,422	1,938	2,162	4,176	3,342	3,727	124.9	112.0	
Greece. . .	156	143	135	109.0	115.6	1,122	967	802	1,934	1,667	1,382	116.0	139.9	
Latvia. . .	195	192	175	101.8	111.2	2,657	2,534	2,034	4,581	4,368	3,507	104.9	130.7	
Lithuania. .	277	278	249	99.7	111.4	3,279	3,086	2,632	5,654	5,321	4,537	106.3	124.6	
Luxemburg. .	4	4	8	98.9	53.6	68	61	108	118	104	186	112.9	63.2	
Norway. . .	11	11	13	100.0	88.5	236	212	227	406	366	392	110.9	103.6	
Poland. . .	326	347	10)	332	93.7	98.1	3,924	3,653	10)	3,500	6,766	6,299	10)	6,034
Un. Kingdom:														
Engl. and W.	92	92	101	100.5	91.3	1,658	1,680	1,792	2,858	2,897	3,090	98.7	92.5	
Sweden. . .	630	626	602	100.6	104.7	14,337	12,224	11,568	24,719	21,077	19,944	117.3	123.9	
Switzerland. .	18	18	16	100.7	111.7	381	384	323	658	661	557	99.4	118.0	
Czecho-Slov. .	13	15	17	91.7	80.3	212	191	240	366	329	413	111.2	88.6	
Yugoslavia. .	167	169	141	99.2	118.5	1,334	1,272	1,118	2,300	2,194	1,927	104.8	119.3	
Canada. . .	1,159	1,128	1,167	102.8	99.4	17,622	16,258	16,483	39,161	36,129	36,629	108.4	106.9	
Turkey.	283	6)	200	...	2,551	2,503	6)	1,477	4,399	4,316	6)	2,547	101.9

NOTES FOR TABLES OF WHEAT, RYE AND MESLIN.

† The years indicated are those of the harvest, single years referring to the Northern Hemisphere, double years to the Southern. — * Countries not included in the totals. — §) In calculating the totals account has been taken of the probable area cultivated in some countries for which estimates of production are available but not those of area. — w) Winter crop. — s) Spring crop. — r) Estimated on May 1. — 2) Provisional estimate. — 3) Including spelt. — 4) Area provided for in the Plan. — 5) Average of three years. — 6) Average of four years. — 7) Including Tigris. — 8) Cultivation by Europeans only. — 9) Area sown. — 10) Average of two years.

Ireland: The first ten days of February were fine but the remainder of the month was wet. Cereals have come through the winter fairly well and losses have been slight. Sowing of spring cereals has only just begun owing to the unfavourable weather.

Italy: The first half of February was mainly mild and dry. The condition of wheat and the secondary winter cereals was good. Spring wheat was being sown and work on the winter wheat crop, favoured by the weather, was making good progress. The second half of the month was very favourable on the whole to the cereal crops and their good condition was maintained.

In some areas the low night temperatures somewhat impeded growth which had been reported to be rather advanced in parts. Sowing of spring wheat and barley continued.

Latvia: The average temperature in February was about 10° F. higher than the normal for the time of year. Rainfall was slightly below average in the west, but in other areas was as much as double. The ground had a snow cover only for a compa-

Area and Production of Barley.

COUNTRIES	† AREA					† PRODUCTION							
	1938 and 1939	1937 and 1938	Average to 1936 and 1932- 1933 to 1936- 1937	1938 and 1938-39		1938 and 1939	1937 and 1938	Average 1932 to 1936 and 1932-33 to 1936-37	1938 and 1939	1937 and 1938	Average 1932 to 1936 and 1932-33 to 1936-37	1938 and 1938-39	
				1937 and 1937- 1938 = 100	Aver. = 100							1937 and 1937- 1938 = 100	Aver. = 100
ooo acres					ooo centals			ooo bushels					
*Albania . . .	...	14	13	...	...	...	128	137	...	267	286	...	...
Germany . . .	4,135	4,235	3,966	97.6	104.3	93,663	80,202	73,517	195,134	167,091	153,162	116.8	127.4
Austria . . .	407	397	413	102.5	98.6	6,665	5,505	6,394	13,885	11,469	13,321	121.1	104.2
Belgium . . .	76	85	86	89.6	88.7	1,967	1,886	2,120	4,098	3,929	4,418	104.3	92.8
Bulgaria . . .	557	540	555	103.2	100.3	7,802	7,273	6,344	16,255	15,153	13,216	107.3	123.0
Denmark . . .	981	911	864	107.7	113.5	29,983	24,238	21,734	62,466	50,496	45,279	123.7	138.0
*Spain . . .	...	...	4,660	...	...	...	...	51,612	...	...	107,527	...	...
Estonia . . .	217	220	257	98.4	84.2	2,133	1,784	2,095	4,443	3,717	4,364	119.5	101.8
Finland . . .	301	299	318	100.6	94.7	4,387	3,879	4,044	9,140	8,082	8,426	113.1	108.5
France . . .	1,890	1,860	1,790	101.6	105.6	28,055	22,413	23,349	58,448	46,694	48,644	125.2	120.2
Greece . . .	x) 541	x) 524	x) 527	103.3	102.6	5,412	4,670	4,260	11,276	9,730	8,875	115.9	127.1
Hungary . . .	1,127	1,155	1,151	97.6	97.9	14,708	12,278	14,636	30,643	25,580	30,492	119.8	100.5
Ireland . . .	118	131	126	90.2	93.2	2,468	2,635	2,911	5,142	5,489	6,065	93.7	84.8
Italy . . .	492	483	499	101.9	98.6	5,462	5,144	4,731	11,380	10,716	9,856	106.2	115.5
Latvia . . .	440	448	461	98.1	95.4	4,863	4,815	4,299	10,131	10,032	8,957	101.0	113.1
Lithuania . . .	536	529	510	101.4	105.2	6,041	6,040	5,332	12,586	12,584	11,108	100.0	113.3
Luxemburg . . .	5	5	7	99.7	71.9	71	60	87	148	124	181	119.6	82.0
Malta 2) . . .	5	5	5	99.9	96.3	102	114	102	213	238	213	89.6	99.9
Norway . . .	148	149	146	99.3	101.5	2,741	2,848	2,523	5,711	5,933	5,256	96.3	108.7
Netherlands . . .	116	121	86	95.4	134.7	3,219	2,978	1,939	6,706	6,204	4,040	108.1	166.0
Poland . . .	2,910	3,046	2,950	95.5	98.6	30,233	30,058	31,566	62,986	62,622	65,764	100.6	95.8
*Portugal . . .	...	180	176	...	...	...	860	501	1,791	1,877	...	...	...
Romania . . .	3,158	3,739	4,258	84.5	74.2	18,347	20,221	29,800	38,223	42,129	62,084	90.7	61.6
Un. Kingdom:	...	...	...	...	...	...	...	...	...	...	...	...	...
Engl. & W. S.	885	823	837	107.6	105.8	17,987	12,902	15,429	37,473	26,880	32,144	139.4	116.6
Scotland . . .	99	81	75	122.4	132.4	2,195	1,770	1,590	4,573	3,687	3,313	124.1	138.0
N. Ireland . . .	3	3	2	123.7	156.8	74	56	50	153	117	104	131.4	147.6
Sweden . . .	272	255	260	106.8	104.9	5,876	4,555	4,671	12,241	9,490	9,731	129.0	125.8
Switzerland . . .	11	11	14	100.9	78.1	192	186	188	400	387	393	103.3	101.8
Czecho-Slov. . .	1,631	1,661	1,644	98.2	99.2	28,616	24,582	26,324	59,617	51,214	54,842	116.4	108.7
Yugoslavia . . .	1,026	1,030	1,040	99.6	98.6	9,287	8,446	9,096	19,349	17,596	18,950	110.0	102.1
Total Europe . . .	22,087	22,746	22,847	97.1	96.7	332,549	291,538	299,131	692,820	607,383	623,198	114.1	111.2
*U.S.S.R. (w) . . .	1,646	1,506	1,154	109.3	142.7	...	...	7,485	...	...	15,595	...	...
(s) 18,969	20,068	18,730	94.5	101.3	...	...	5) 146,139	...	...	...	304,463	...	...
Canada . . .	4,454	4,331	3,870	102.8	115.1	49,076	39,900	34,922	102,242	83,124	72,754	123.0	140.5
United States . . .	10,513	9,968	10,032	105.5	104.8	121,027	105,757	96,193	252,139	220,327	200,402	114.4	125.8
Total N. Am. . .	14,967	14,299	13,902	104.7	107.7	170,103	145,657	131,115	354,381	303,451	273,156	116.8	129.7
*China . . .	...	14,721	16,155	...	...	...	140,466	174,466	...	292,642	363,478	...	...
Cyprus . . .	115	108	110	106.5	104.6	913	967	838	1,902	2,014	1,746	94.5	108.9
Chosen . . .	2,737	2,685	2,522	102.0	108.5	24,528	31,964	22,883	51,100	66,592	47,673	76.7	107.2
*Iraq . . .	...	2,000	1,452	...	...	...	12,566	7,868	...	26,180	16,391	...	...
Japan . . .	1,892	1,811	1,942	104.5	97.4	30,807	34,727	35,424	64,182	72,349	73,802	88.7	87.0
*Palestine . . .	...	553	544	...	...	...	1,663	1,114	...	3,464	2,320	...	...
Syria & Leb. . .	838	795	742	105.4	112.9	8,493	5,872	6,306	17,693	12,233	13,137	144.6	134.7
*Transjord. . .	...	...	...	...	...	...	1,168	503	...	2,434	1,052	...	...
Turkey . . .	...	4,369	3,906	...	...	56,983	50,194	35,075	118,716	104,572	73,074	113.5	162.5
Total Asia . . .	9,951	9,968	9,222	101.9	107.9	121,724	123,724	100,526	253,593	257,760	209,432	98.4	121.1
Algeria . . .	2,909	3,093	3,229	94.1	90.1	12,944	13,118	16,718	26,967	27,329	34,830	98.7	77.4
Egypt . . .	274	271	303	101.1	90.3	5,130	5,075	4,956	10,687	10,574	10,324	101.1	103.5
It. East Afr. . .	...	...	...	...	...	...	...	...	...	...	...	...	...
*Eritrea . . .	...	6) 104	62	...	...	...	6) 419	330	...	6) 873	687	...	...
*Libya . . .	367	304	367	121.0	100.1	...	850	981	...	1,771	2,044	...	...
F. Morocco . . .	4,240	4,796	3,860	88.4	109.9	22,101	18,212	26,236	46,045	37,943	54,660	121.4	84.2
Tunisia . . .	741	1,532	1,144	48.4	64.8	2,866	4,409	4,564	5,971	9,186	9,508	65.0	62.8
Total Africa . . .	8,164	9,692	8,536	84.2	95.6	43,041	40,814	52,474	89,670	85,032	109,322	105.5	82.0
Argent. . . (1)	(2,053)	(1,942)	(1,843)	105.7	111.4	9,700	11,321	14,583	20,209	23,585	30,381	85.7	66.5
(7) . . .	...	1,125	1,362	...	...	...	...	...	...	...	...	...	...
*Chile . . .	203	243	176	83.7	115.6	...	3,611	2,544	...	7,523	5,299	...	...
Uruguay . . .	42	31	22	136.7	188.9	341	248	144	711	517	300	137.5	236.7
*Un. of S. Afr. 9)	...	...	73	...	...	...	555	652	...	1,156	1,357	...	...
*N. Zealand . . .	...	25	19	...	...	...	543	327	...	1,131	681	...	...
TOTALS \$. . .	56,336	57,661	55,891	97.7	100.8	677,458	613,302	597,973	1,411,384	1,277,728	1,245,789	110.5	113.3

Area and Production of Oats.

COUNTRIES	† AREA					† PRODUCTION									
	1938 and 1937- 1939	1937 and 1937- 1938	Average 1932 to 1936 and 1933- to 1936- 1937	1938 and 1938-39		1938 and 1938-39	1937 and 1937-38	Average 1932 to 1936 and 1932-33 to 1936-37	1938 and 1938-39	1937 and 1937-38	Average 1932 to 1936 and 1932-33 to 1936-37	1938 and 1938-39			
				1937 and 1937- 1938 =100	Aver. =100							1937 and 1937- 1938 =100	Aver. =100		
ooo acres					ooo centals					ooo bushels					
*Albania . . .	...	29	24	...	...	...	246	226	...	768	705	...	...
Germany . . .	6,666	7,030	7,502	94.8	88.8	140,343	130,482	132,539	438,569	407,754	414,180	107.6	105.9		
Austria . . .	738	698	742	105.7	99.4	9,681	9,116	9,600	30,251	28,488	30,000	106.2	100.8		
Belgium . . .	527	521	609	101.1	86.6	13,692	11,468	16,420	42,788	35,839	51,312	119.4	83.4		
Bulgaria . . .	353	369	300	95.6	117.8	1,953	3,230	2,352	6,103	10,094	7,351	60.5	83.0		
Denmark . . .	924	930	943	99.4	98.1	25,353	22,595	21,682	79,228	70,610	67,757	112.2	116.9		
*Spain . . .	...	...	1,791	...	...	...	...	14,544	...	...	45,449	...	...
Estonia . . .	368	358	345	102.8	106.7	3,891	3,067	2,885	12,160	9,585	9,016	126.9	134.9		
Finland . . .	1,144	1,125	1,140	101.7	100.3	18,012	16,039	14,915	56,287	50,121	46,610	112.3	120.8		
France . . .	8,101	8,039	8,226	100.8	98.5	120,135	95,826	103,821	375,418	299,455	324,439	125.4	115.7		
Greece . . .	383	360	334	106.5	114.6	3,362	2,961	2,323	10,505	9,254	7,258	113.5	144.7		
Hungary . . .	557	570	546	97.9	102.0	6,139	5,961	6,352	19,185	18,629	19,850	103.0	96.7		
Ireland . . .	570	573	605	99.5	94.3	12,523	12,841	13,193	39,133	40,128	41,229	97.5	94.9		
Italy . . .	1,107	1,076	1,078	102.9	102.7	13,870	13,663	11,748	43,345	42,696	36,712	101.5	118.1		
Latvia . . .	860	829	792	103.7	108.5	9,846	8,929	7,551	30,769	27,903	23,597	110.3	130.4		
Lithuania . . .	878	861	866	101.9	101.3	9,259	8,549	7,970	28,936	26,715	24,905	108.3	116.2		
Luxemburg . . .	61	64	67	95.7	91.9	917	861	995	2,866	2,692	3,109	106.5	92.2		
Norway . . .	211	211	226	99.7	93.2	4,337	4,155	3,982	13,554	12,985	12,444	104.4	108.9		
Netherlands . . .	361	363	332	99.6	108.9	8,091	8,294	6,470	25,284	25,918	20,217	97.6	125.1		
Poland . . .	5,623	5,669	5,499	99.2	102.3	58,565	51,652	56,714	183,015	161,411	177,231	113.4	103.3		
*Portugal . . .	...	645	489	...	...	...	2,168	1,926	...	6,774	6,020	...	...
Romania . . .	1,609	1,939	2,001	83.0	80.4	10,209	11,305	15,226	31,904	35,328	47,581	90.3	67.1		
United Kingdom: Engl. and Wales . . .	1,301	1,223	1,463	106.3	88.9	23,946	21,011	26,033	74,830	65,660	81,354	114.0	92.0		
Scotland . . .	798	819	839	97.4	95.1	14,179	14,918	15,268	44,310	46,620	47,712	95.0	92.9		
N. Ireland . . .	296	257	278	115.4	106.6	6,489	5,438	6,025	20,279	16,993	18,827	119.3	107.7		
Sweden . . .	1,647	1,640	1,644	100.5	100.2	30,441	27,895	26,547	95,127	87,172	82,959	109.1	114.7		
Switzerland . . .	28	27	31	102.6	89.2	541	529	514	1,692	1,653	1,607	102.3	105.3		
Czechoslovakia . . .	1,902	1,925	1,959	98.8	97.1	27,999	30,255	29,390	87,496	94,547	91,842	92.5	95.3		
Slovakia . . .	894	854	893	104.6	100.1	7,199	6,514	6,987	22,496	20,356	21,834	110.5	103.0		
Yugoslavia . . .	37,907	38,330	39,260	98.9	96.6	580,972	527,554	547,502	1,815,530	1,648,606	1,710,933	110.1	106.1		
Total Europe . . .	...	...	...	...	...	...	...	...	...	...	...	...	...
*U. S. S. R. . .	41,196	43,193	42,528	95.4	96.9	...	...	351,758	...	...	1,099,236	...	...
Canada . . .	13,010	13,048	13,558	99.7	96.0	126,270	91,270	114,667	394,593	285,220	358,336	138.3	110.1		
United States . . .	35,477	35,256	36,178	100.6	98.1	337,228	371,716	288,437	1,053,839	1,161,612	901,367	90.7	116.9		
Total N. Am. . .	48,487	48,304	49,736	100.4	97.5	463,498	462,986	403,104	1,448,432	1,446,832	1,259,703	100.1	115.0		
*China . . .	...	2,428	2,529	...	...	...	18,794	19,356	...	58,732	60,488	...	...
Cyprus . . .	14	12	11	110.8	120.7	89	79	63	277	246	198	112.6	139.7		
Syria & Leb. . .	24	27	31	91.6	79.6	219	234	280	686	730	876	93.9	78.3		
Turkey . . .	...	532	483	...	...	7,441	4,940	4,145	23,254	15,437	12,952	150.6	179.5
Algeria . . .	450	477	459	94.3	98.1	3,486	3,061	3,179	10,892	9,565	9,935	113.9	109.6		
Fr. Morocco . . .	109	105	70	103.7	154.6	1,058	870	476	3,307	2,718	1,487	121.6	222.4		
Tunisia . . .	77	91	63	83.8	122.3	661	628	379	2,067	1,963	1,185	105.3	174.4		
Total N. Afr. . .	636	673	592	94.5	107.5	5,205	4,559	4,034	16,266	14,246	12,607	114.2	129.0		
Argentina (1) (2) . . .	(3,361)	(3,254)	(3,391)	103.3	99.1	15,873	15,190	17,883	49,604	47,468	55,885	104.5	88.8		
*Chile . . .	338	298	224	113.4	150.9	...	2,712	2,135	...	8,474	6,673	...	...
Uruguay . . .	261	221	187	118.0	139.4	1,729	1,065	770	5,402	3,328	2,405	162.3	224.6		
*Un. of S. Afr. (8) . . .	...	...	521	...	...	...	1,870	2,242	...	5,845	7,007	...	...
*New Zealand . . .	...	58	80	...	...	...	1,056	1,367	...	3,301	4,273	...	...
TOTALS . . .	89,631	89,869	92,152	99.7	97.3	1,075,026	1,016,607	977,781	3,359,451	3,176,893	3,055,559	105.7	109.9		

† The years indicated are those of the harvest, single years referring to the Northern Hemisphere, double years to the Southern. — * Countries not included in the totals. — § In calculating the totals account has been taken of the probable area cultivated in some countries for which estimates of production are available but not those of area. — w) Winter crop. — s) Spring crop. — r) Area sown. — 2) Barley and meslin. — 3) Area provided for in the Plan. — 4) Average 1934 to 1936. — 5) Average 1932 to 1935. — 6) Including Tigris. — 7) Area harvested. — 8) Cultivation by Europeans only. — 9) Average 1933/34 to 1936/37.

ratively short period during the month. Field work was considerably retarded by the impassable state of roads.

Lithuania: The temperature in February remained fairly steady at several degrees below freezing point and for almost the whole of the month the fields were again covered with snow.

Romania: Winter cereal crops were growing well at the beginning of March. The lack of moisture was felt in all parts of the country. But at the end of the first decade of March there was general rain which greatly improved the condition of crops. The snow that fell about the middle of March in Moldavia, north Transylvania, Dobruja and the Danube valley is not regarded with any preoccupation by farmers, who were rather anxious about the possibility of drought.

Ploughing and the sowing of spring cereals made good progress throughout the first half of March.

United Kingdom: The weather in February was generally mild and dry, particularly in the south and east. Wheat recovered from the check due to the severe weather of December and January and is on the whole a satisfactory plant, except on some low-lying areas where it has lost colour and is patchy. Barley and oats have also recovered to some extent, but in certain areas the plants have been badly damaged by frost and wet, and complete or partial resowing has been extensively resorted to. Rye is healthy and strong.

February was favourable for winter work. Spring sowing is a little retarded, particularly on heavy soils, which are difficult to work.

In parts of Scotland the weather was stormy in February but in the northeast it was fine. Spring sowing was proceeding in some areas but was retarded in the centre and south.

U. S. S. R.: According to recently published official returns, the aggregate production of cereals and leguminous crops for grain in 1938 amounted to 2,094,000,000 centals against 2,652,000,000 in 1937 and an average of 1,860,300,000 in 1932-1936; percentages, 79.0 and 112.6.

In the second half of February and the first decade of March, the weather was almost continuously cold. At the beginning of the second half of March, in the European part of the Union, the fields were snow-covered, except in a large part of Ukraina, in Crimea, North Caucasus and the Rostov region.

America.

United States: The Crop Reporting Board has made the following estimates of the intended acreages of the cereal crops in 1939. The figures are based on reports made by farmers on or about March 1 regarding their planting intentions. The acreages actually planted in 1939 may turn out to be larger or smaller than the indicated acreages owing to weather conditions, price changes, labour supply, financial conditions, the agricultural conservation programme and the effect of these estimates themselves upon farmers' actions.

	Intentions 1939	Area planted 1938	Average planted area 1933-37	% 1938 = 100	% 1939 Average = 100
	(thousand acres)				
All spring wheat.	19,505	23,515	22,507	82.9	86.7
Durum	(3,545)	(3,856)	—	91.9	—
Barley	13,219	11,334	12,322	116.6	107.3
Oats	35,393	36,615	39,074	96.7	90.6

At the end of February, the soil in the Ohio Valley was saturated and, although there were some complaints of heaving, conditions were mostly fair to good. Prospects were favourable east of the Mississippi. Heavy snows in Kansas and some adjoining sections improved prospects for wheat which survived the long, dry spell. South of Kansas, growth was slow and moisture was needed locally. Conditions on the Pacific Coast were good.

The first week of March was satisfactory in the east. There were some complaints of standing water in the southern part of the Ohio Valley; otherwise conditions were satisfactory. Beneficial snows were experienced in the upper Ohio Valley. In Kansas top-soil moisture was satisfactory, except in the west. The crop was making slow progress in Oklahoma and the general condition was poor except in north-central and northeastern sections. In southern Nebraska some growth was reported and crop condition was fair but there was evidence of considerable winter killing. Favourable conditions prevailed in the Rockies and along the Pacific Coast.

Asia.

India: Conditions at sowing time were not generally favourable. The crop has been affected by inadequate rains but in the third decade of February its prospects appeared to be fairly good on the whole. Rains were urgently needed.

In the Punjab there were light showers in the fortnight ending February 20 and general rain in the subsequent fortnight. Condition of irrigated crops on March 6 was average, that of unirrigated under average. Some damage had been caused in Gurgaon, Hissar, Amritsar, Sialkot and Multan by hail. In the Central Provinces the sky was clear, with light rain, until the middle of February, when cloudy conditions set in, with hail in places; crops were in fair condition and harvesting was proceeding.

Japan: Weather conditions in February were unfavourable for winter wheat and barley.

Palestine: Weather conditions during February were very favourable generally speaking. Cereal crops have wintered in good condition, and only slight losses from field mice are reported. General condition of crops on March 1 was good. The wheat crop of 1938 was both short of the usual quantity and badly attacked by rust. Barley grain was good.

Africa.

Algeria: February was generally wet and cold. Rains caused flooding in the second half. Snow fell on heights at the end of the month. Crops came through the winter in good conditions. Tillering was satisfactory and seedlings are thick. Condition was satisfactory at the end of February. Growth was too exuberant in some places and there were cases of lodging. Floods and whiteworms caused local damage.

Egypt: The wheat crop, having been watered at the termination of the period of winter closure of canals, which happened to be droughty, made improved growth. Earling is progressing in early and some general areas. Some few areas in Upper Egypt have entered into the milking stage. Manuring is over. Crop condition is normal.

Water being adequate, growth of the barley crop has improved since last month. Earling is progressing in early and in general cultivations. Grains are progressing into the milking stage in many cultivations, particularly in Upper Egypt. Crop condition is normal.

French Morocco: Conditions in February were generally favourable for crops and the agricultural situation has good prospects. The winter cereals grew well in all parts. In Sous and Chiadma barley has begun to ear. Spring sowings, particularly those of maize and sorghum, were favoured by good weather.

Tunisia: In February the temperature was above normal and there were heavy rains over the greater part of Tunisia. The frequent rain caused rivulets to form on slopes and floods occurred on low-lying ground in certain areas. At the end of February growth was on the whole very satisfactory in all areas. In the south (Sousse district), plants resumed growth vigorously, sprouting was even and, in spite of the lateness of the season, natives are still engaged in resowing. Weeds however are everywhere very numerous.

Union of South Africa: Wheat harvesting was finished in January. Yields were generally good in the southwest of Cape Province, but in Orange Free State, though much better than last year's were not as good as was expected.

Current information on Maize.

Argentina: Heavy rains in February in the principal maize producing centres stimulated growth and crop conditions at the beginning of March varied from average to good.

The second estimate, published on March 8 by the Argentine Government, of the areas sown in the 1938-39 season shows a decrease from the former estimate. The new estimate is 14.5 per cent. lower than the final estimate of sown acreage in the 1937-38 season and 20.9 per cent. less than the previous five-year average. The considerable fall in sown acreage this season compared with previous years is due to the unfavourable weather conditions, particularly drought and high temperatures, during the sowing season.

United States: The Crop Reporting Board estimates that the prospective maize plantings in 1939 will cover an area of 92,062,000 acres. This estimate is based on reports received from farmers on or about March 1 regarding their planting intentions (see under Cereals). The area planted in 1938 was 93,257,000 acres and the average planted area in the five years 1933 to 1937 was 100,729,000 acres.

Netherlands Indies: Java and Madura. — The Department of Agricultural Statistics of the Central Statistical Office communicates the following details on the maize area:—

	1939 acres	1938 acres
Area harvested in January	792,500	708,200
Area of standing crops at the end of January .	1,773,000	1,807,600

Indochina: Drought impeded sowing in Cambodia and CochinChina, and the dry season crop was in unsatisfactory condition at the end of January. In Annam the January harvest was satisfactory. In Tonkin and Annam, the January sowings profited from favourable conditions.

Egypt: According to the most recent estimate, the area cultivated to millet in 1938 was 404,400 acres against 332,000 in 1937 and 326,600 on the average of the five years ending 1936; percentages, 121.8 and 123.8. The corresponding production is estimated at about 10,364,000 centals (20,728,000 bushels) against 8,961,000 (17,921,000) and 8,747,000 (17,493,000); percentages, 115.7 and 118.5.

Area and Production of Maize.

COUNTRIES	† AREA				† PRODUCTION								
	1938 and 1939	1937 and 1938	Aver. 1932 to 1936 and 1932- 1933 to 1936- 1937	% 1938 and 1938-39	1938 and 1939	1937 and 1938	Average 1932 to 1936 and 1932-33 to 1936/37	1938 and 1939	1937 and 1938	Average 1932 to 1936 and 1932-33 to 1936-37	% 1938 and 1938-39		
											1937 and 1937- 1938 = 100	Aver- age = 100	
ooo acres				ooo centals				ooo bushels					
*Albania . . .	...	227	208	...	...	3,020	2,666	...	5,393	4,760	...	...
Germany ¹⁾ . .	343	254	183	135.2	8,593	6,672 ²⁾	3,792	15,344	11,915 ³⁾	6,771	128.8	...	
Bulgaria . . .	1,731	1,685	1,751	102.7	11,427	18,944	19,876	20,406	33,828	35,493	60.3	57.5	
*Spain . . .	...	...	1,082	...	...	...	15,856	...	28,314	...	...	...
France . . .	848	854	842	99.3	14,040	11,344	10,838	25,071	20,257	19,353	123.8	129.5	
Greece . . . ⁴⁾	671 ⁵⁾	690 ⁶⁾	618	97.2	4,398	7,112	5,182	7,853	12,700	9,253	61.8	84.9	
Hungary . . .	2,905	2,955	2,830	98.3	56,896	60,820	45,640	101,600	108,607	81,500	93.5	124.7	
Italy . . . ⁴⁾	3,297	3,167	3,242	104.1	58,077	67,149	57,896	103,710	119,910	103,385	86.5	100.3	
Italy . . . ⁵⁾	427	467	371	91.5	115.1	6,658	7,714	11,889	13,774	9,792	86.3	121.4	
Poland . . .	218	228	227	95.7	95.9	2,783	2,274	2,067	4,969	4,060	3,691	122.4	134.6
*Portugal . .	...	909	1,040	...	...	7,051	7,001	...	12,592	12,503	...	...
Romania . . .	12,349	12,749	12,374	96.9	99.8	112,399	104,760	116,337	200,713	187,071	207,745	107.3	96.6
*Switzerland .	...	2	2	...	...	55	53	...	98	94	...	...
Czecho- (6) .	271 ⁷⁾	239 ⁸⁾	209	113.3	129.5	5,088	4,930 ⁹⁾	3,427	9,087	8,804 ¹⁰⁾	6,121	103.2	148.5
Slovakia (7)*	176 ¹¹⁾	217 ¹²⁾	173	81.3	101.9	2,636 ¹³⁾	1,996	...	4,707 ¹⁴⁾	3,564	...	...
Yugoslavia . .	6,584	6,649	6,371	99.0	103.3	97,159	117,636	95,831	173,499	210,065	171,128	82.6	101.4
Total Europe	29,644	29,937	29,018	99.0	102.1	377,518	409,355	366,370	674,141	730,991	654,232	92.2	103.0
*U.S.S.R. . . ¹⁵⁾	6,034 ¹⁶⁾	6,618	8,463	91.2	71.3	...	...	81,924 ¹⁷⁾	...	146,293 ¹⁸⁾
Canada . . .	180	166	152	108.8	118.5	4,306	3,032	3,445	7,690	5,415	6,151	142.0	125.0
Unit. St. { (11)	91,792	93,741	99,544	97.9	92.2	1,423,653	1,484,719	1,187,521	2,542,238	2,651,284	2,120,574	95.9	119.9
(12)	(82,106)	(81,483)	...	100.8	...	1,275,265	1,316,167	1,018,659	2,277,259	2,350,299	1,819,034	96.9	125.2
*Mexico . . .	...	7,413	7,526	...	...	...	36,040	39,128	...	64,357	69,872	...	...
Total N. Am.	91,972	93,907	99,696	97.9	92.3	1,427,959	1,487,751	1,190,966	2,549,928	2,656,699	2,126,725	96.0	119.9
*China . . .	...	...	11,201	...	...	...	137,824	...	...	246,115	...	...	...
Manchukuo . .	...	3,445	2,839	...	...	51,704	44,000	39,487	92,329	78,572	70,513	117.5	130.9
*Palestine . .	...	18	14	...	...	...	191	79	...	341	142	...	...
*Syria & Leb. .	...	48	54	...	...	...	599	520	...	1,070	928	...	...
*Transjord. . .	...	...	...	...	...	...	2	5	...	3	8	...	...
Turkey . . .	...	1,112	1,015	...	...	15,753	11,929	11,127	28,130	21,301	19,870	132.1	141.6
Total Asia	...	4,557	3,854	...	...	67,457	55,929	50,614	120,459	99,873	90,303	120.6	133.3
Ital. East Afr.	...	...	...	...	...	...	...	...	...	...	...	...	...
* Eritrea . . .	...	25	26	...	...	...	86	184	...	154	329	...	...
* Somalia . .	...	...	34	...	...	...	...	317	...	...	565	...	...
Algeria . . .	15	16	19	95.8	80.0	83	78	114	148	140	204	105.7	72.4
Egypt { (14)	1,545	1,613	1,698	95.8	91.0	34,627	36,275	36,297	61,835	64,777	64,816	95.1	95.0
(15)	9	6	7	153.8	124.3	...	127	141	...	227	251	...	...
Kenya (16)	112	113	122	98.6	91.6	1,940	1,936	1,893	3,465	3,457	3,379	100.2	102.5
French Mo- rocco . . .	1,068	1,120	963	95.3	110.9	4,255	3,561	4,171	7,598	6,360	7,449	119.5	102.0
*Tunisia (17)	...	67	48	...	...	...	132	123	...	236	220	...	...
Total N. Afr.	2,749	2,868	2,809	95.9	97.9	40,905	41,977	42,616	73,046	74,961	76,099	97.4	96.0
*Argen- (3) tina (18)	(13,097)	(15,319)	(16,567)	85.5	79.1	...	97,533	193,978	...	174,166	346,391	...	...
*Chile . . .	...	7,307	11,641	...	...	...	1,238	1,496	...	2,211	2,671	...	...
...	...	107	125	...	...	...	...	...	...	...	...	...	...
*Madagascar .	...	280	205	...	...	...	2,756	1,825	...	4,921	3,259	...	...
*Un. of (16) S. Afr. (19)	...	6,051	5,780	...	...	...	35,218	30,864	...	62,889	55,114	...	...
...	...	...	...	...	...	...	...	6,789	...	...	12,124	...	...
TOTALS §) . .	128,922	131,269	135,377	98.2	95.2	1,913,839	1,995,012	1,650,566	3,417,574	3,562,524	2,947,439	95.9	116.0

† The years indicated are those of the harvest, single years referring to the Northern Hemisphere, double years to the Southern. — * Not included in the total. — § In calculating the totals account has been taken of the probable area cultivated in some countries for which estimates of production are available but not those of area. — 1) Including Austria. — 2) Estimation for the old territory. — 3) Area sown. — 4) Maize sown in spring. — 5) Maize sown in summer. — 6) Crop grown alone. — 7) Mixed crop. — 8) Average 1934 to 1936. — 9) Area fixed by the plan. — 10) Average 1932 to 1935. — 11) Maize for all purposes. — 12) Maize harvested as grain. — 13) Including Tigris. — 14) *Nili* maize. — 15) *Sefi* maize. — 16) Cultivation by Europeans. — 17) Maize and sorghum. — 18) Area harvested. — 19) Cultivation by natives.

Kenya: Normal hot and dry weather conditions were experienced throughout the Colony during January.

Union of South Africa: Heavy rains fell over the greater part of Transvaal in January, but not on the western highveld, where drought continued. In some parts maize crops were waterlogged. On the whole, however, crop prospects were bright.

In the Orange Free State the first three weeks of January were very hot, but in the last week good rains fell throughout the province. Crop prospects were good.

Rice production and trade in monsoon Asia.

The data at present available for the season 1938-39 cover over four-fifths of world rice production if China is excluded from the calculations and about nine-tenths if China is included. Assuming that production in the countries for which data are not yet available will show little change from last season, world production is probably slightly smaller than in 1937-38, when there was a coincidence of large crops in China, India and the Japanese Empire. The following table gives the latest estimates of production for the last five seasons.

World production of rough rice ⁽¹⁾
(millions of pounds)

1938-39	326,000
1937-38	327,800
1936-37	312,130
1935-36	293,900
1934-35	275,930

(¹) Not including Iran.

Production in the major Exporting Countries.

Of the three major exporting countries only Burma has published final estimates of the 1938-39 crop. For Siam only the second estimates are yet available, while for French Indochina some of the most important statistical elements are lacking at this date.

In Burma the area harvested is now estimated at 12,529,200 acres, a very slight decrease on the maximum of 12,534,300 attained last season but 1.9 per cent. above the average of 12,296,000 for the five years ending 1936-37. The area sown was 12,820,100 acres, 0.3 per cent. below the 12,861,500 of last season but 1.1 per cent. above the five-year average of 12,682,000 acres. The area destroyed was the smallest of recent years, being only 290,900 acres, a decrease of 11.1 per cent. on the 327,200 of last year and one of 24.6 per cent. on the average of 386,000 acres. While the area destroyed rose considerably toward the end of the season, crop condition remained much better than last year and production attained the record of 13,388 million pounds of white rice and derivatives, 17.8 per cent. larger than the 11,363 million of 1937-38 and 10.0 per cent. larger than the five-year average of 12,168 million pounds.

Area under Rice in India, Burma, Siam and French Indochina

(in thousands of acres)

YEAR	India	Burma	Siam	French Indochina ⁽¹⁾
1938-39	72,574	12,820	8,758	(2) 12,900
1937-38	72,554	12,945	8,328	
1936-37	72,295	12,634	8,051	
1935-36	70,998	12,503	8,347	
1934-35	69,731	12,688	8,245	
1933-34	70,504	12,919	8,019	
1932-33	70,180	12,702	7,942	13,305
1931-32	71,857	12,518	7,638	13,103

(1) Final estimates of area harvested, comparable statistics of sown area not being available. — (2) Rough estimate.

In Siam the area planted, 8,758,000 acres according to the first forecast, was the largest of recent years, 5.2 per cent. greater than the 8,328,000 of 1937-38 and 7.8 per cent. greater than the five-year average of 8,121,000 acres. Allowing for damage, which, according to the first forecast, amounted to 1,048,000 acres, not an exceptional figure, the area to mature was 7,710,000 acres, 6.0 per cent. above that of 1937-38 and 10.2 per cent. above the average. Production according to the second estimate was 8,164 million pounds of white rice and derivatives, over 8 per cent. above both that of last season and the five-year average.

For French Indochina data concerning the size of the crop are available only for Annam, where a very good crop has been obtained, thanks to favourable weather, except in the south, where flooding occurred, and for Tonkin, where production was exceptionally large, due both to the greater area sown and to favourable weather. Reports from Cochinchina, the predominant source of the rice exports of French Indochina and where a larger area was sown than last season or the average, have been very favourable, a crop larger than

Production and Exports of the major Exporting Countries

(in millions of pounds of white rice and derivatives)

YEAR	Burma		Siam		French Indochina		Total	
	Product.	Export	Product.	Export ⁽¹⁾	Product.	Export	Product.	Export
1938-39	13,388	(2) 7,952	8,164	(3) 2,819	(4) 11,100	(4) 3,968	(5) 32,700	(1) 14,739
1937-38	11,363	6,864	7,533	3,186	9,950	2,316	28,596	12,366
1936-37	11,787	7,155	5,589	2,070	10,165	3,322	27,541	12,547
1935-36	12,478	7,007	7,783	3,655	9,731	3,751	29,922	14,413
1934-35	11,314	7,174	7,602	3,576	8,865	3,663	27,781	14,413
1933-34	12,897	8,465	8,280	4,127	9,388	3,250	30,565	15,842
1932-33	12,265	7,383	8,460	3,566	9,324	2,784	30,049	13,733
1931-32	10,453	6,799	6,727	3,357	9,036	2,624	26,216	12,780

(1) Exports *tel quel*, from Bangkok, December to November. — (2) Official estimates of export surplus. — (3) Rough estimate. — (4) Unofficial estimate of export surplus. —

that of last year, already above average, being expected in several provinces. In Cambodia, also a surplus-producing country, unit-yields of main-season rice were with few exceptions larger than were obtained last season.

In all three of the major exporting countries the crop thus appears to have been a large one, larger than obtained last season and, in Burma, the most important of the three, reaching a record level.

The surplus available for export from Burma is estimated at 7,952 million pounds of white rice and derivatives, 15.8 per cent. greater than the actual export of 6,864 million in 1938 and 6.9 per cent. above the average export of 7,437 million in the five years 1933-37: this season's estimated export surplus has been exceeded in recent years by actual exports only in 1934, when 8,465 million pounds were exported.

The first official estimate of Siam's export surplus, including carryover, was 2,819 million pounds of white rice and derivatives; subsequent revision of the production estimate so far does not give grounds for changing this figure. For French Indochina the export surplus is estimated unofficially at 3,968 million pounds. On the basis of these estimates the total surplus available for export this year from the three major exporting countries is 14,739 million pounds of white rice and derivatives, a figure in excess of that for 1938 and larger than the actual combined exports of any year since 1934.

Situation in the principal Importing Countries and in territories under Japanese control.

In India, the largest importing country, the area sown to rice is now estimated at 72,574,000 acres an insignificant increase on the corresponding estimate of 72,554,000 for last season but the maximum so far attained. The increase on the corresponding average of 71,716,000 acres for the five years ending 1936-1937 is 1.2 per cent.

The estimated production of 58,919 million pounds of white rice and derivatives is, on the other hand, lower than any in the last ten years with the excep-

Production in the principal Asiatic rice-importing Countries, excluding Japan

(in millions of pounds of white rice and derivatives).

YEAR	India	China	British Malaya	Java and Madura	Philippines
1938-39	58,919	(1) 94,873	...	...	...
1937-38	66,881	(2) 91,667	777	8,514	3,274
1936-37	69,542	79,391	829	8,479	3,713
1935-36	58,009	79,432	889	8,582	3,071
1934-35	64,239	64,722	860	8,253	3,334
1933-34	64,307	79,842	875	7,616	3,856
1932-33	65,476	81,735	779	8,096	3,481
1931-32	71,969	71,230	769	7,983	3,441

(1) Unofficial estimate.

tion of 1935-36. Compared with last season's 66,881 million pounds it shows a decrease of 11.9 per cent. and compared with the five-year average of 64,809 million a decrease of 9.1 per cent. Imports from Burma in January and February were very large.

Net Imports into the principal Asiatic markets, excluding Japan

(in millions of pounds of white rice and derivatives).

YEAR	India (imports from Burma)	China	British Malaya	Ceylon	Netherlands East Indies	Philippines
1938	(1) 2,838	.894	...	1,187	(2) — 26	...
1937	3,202	715	1,593	1,164	239	159
1936	4,003	625	1,478	1,184	407	201
1935	3,789	2,844	1,339	1,234	802	10
1934	5,177	1,685	1,293	1,088	571	(1) — 3
1933	3,302	2,843	1,240	1,003	751	43
1932	2,107	2,993	1,145	1,024	887	28

(1) Tel quel, to 28 December. — (2) Net export.

In normal times China is the second largest importer of rice. According to a report of the United States Agricultural Commissioner at Shanghai, the 1938-39 crop has been a very large one, estimated at 3 per cent. above that of 1937-38, already a record, and there was also a large carryover. The large supplies available within the country would in themselves mean a persistence of the relatively low level of imports that has characterized the last three years.

Imports into China

(in millions of pounds).

YEAR	Total	French Indochina	Siam	Burma	Hong Kong
1938	895	230	408	166	24
1937	762	405	243	111	1
1936	684	249	388	43	1
1935	2,858	1,662	756	(1) 426	2
1934	1,700	755	761	(1) 141	29
1933	2,856	1,249	1,007	(1) 560	25
1932	2,998	1,010	858	(1) 956	153

(1) Although the statistics for these years included India with Burma it may be assumed that practically the entire import was from Burma.

As regards the rice-importing countries of the second rank, reports from British Malaya have indicated rather unfavourable weather and this may result in the necessity for larger imports.

In Java and Madura the area harvested in the calendar year 1938 was somewhat larger than that in the previous year. As regards Ceylon information

is not available. The most recent reports from the Philippine Islands indicate doubts as to the size of the crop, the harvesting of which was considerably hampered by typhoons and heavy rains. Should these conditions have resulted in a small crop, there would, as in 1936 and 1937, be a considerable net import.

Japanese Rice Supplies

(in millions of pounds of white rice and derivatives).

YEAR	Production in the Japanese Empire					Production in Manchukuo	YEAR	Net imports into Japan		Net exports of Chosen to foreign countries
	Japan	Chosen	Taiwan	Kwantung	Total			from Chosen	from foreign countries	
1938-39 ...	21,561	7,883	3,009	...	(1) 32,453	1,277	1939....	...	...	...
1937-38 ...	21,709	8,772	2,833	...	(2) 33,314	1,241	1938....	2,546	...	103
1936-37 ...	22,043	6,340	2,933	5	31,321	1,013	1937....	2,249	...	14
1935-36 ...	18,808	5,854	2,799	4	27,465	744	1936....	2,564	99	15
1934-35 ...	16,969	5,472	2,789	4	24,758	558	1935....	2,546	17	39
1933-34 ...	23,185	5,955	2,566	4	31,710	545	1934....	2,861	(2) — 128	25
1932-33 ...	19,768	5,351	2,746	3	27,868	440	1933....	2,295	279	22
1931-32 ...	18,074	5,196	2,295	5	25,570	571	1932....	2,181	235	1

(1) Not including Kwantung. — (2) Net export.

Production in the different countries of the Japanese Empire, though not reaching the exceptionally high figures of 1937-38, when an extraordinary crop was obtained in Chosen and large crops in both Japan and Taiwan, appears generally to be above the average. In Chosen, though the area under rice is below the five-year average, production remains at a level much above it, while in Taiwan large crops have again been obtained this season. The large crops of 1937-38 resulted in a large carryover and, taking this into account, supplies for the current season are reported to be more than adequate. Nevertheless the Japanese authorities are reported to be shipping rice from the Yangtze basin. Outside the lower Yangtze valley, however, the Japanese appear to have little or no control over the main rice-growing areas.

Conclusion.

Summing up, supplies in the three major exporting countries, especially in Burma and French Indochina, appear to be large, those in the principal importing country, India, smaller than normal. Supplies in Japanese territories are also large, so that Japan is not likely to compete on the external market. Amongst other importing countries China, the most significant, appears to have a still larger crop than in 1937-38; on the other hand British Malaya and the Philippines may have to draw more than usually on outside supplies. The outstanding feature of the rice trade in 1939 is thus likely to be the balancing of the larger Indian deficit with the larger surplus of the three major exporters.

C. J. R.

Current information on Rice.

United States: The Crop Reporting Board estimates, on the basis of farmers' reports on their planting intentions, that the prospective acreage planted to rice in 1939 will be about 1,006,000 acres. The acreage harvested last year was 1,068,000 acres.

Area and Production of Rice.

COUNTRIES	AREA						PRODUCTION OF ROUGH RICE							
	1938-39	1937-38	1932-33 to 1936-37	% 1938-39		1937-38	1937-38	Average 1932-33 to 1936-37	1938-39	1937-38	Average 1932-33 to 1936-37	% 1938-39		
ooo acres	ooo centals	ooo bushels of 45 lb.	= 100	= 100										
Bulgaria . .	18	14	19	124.7	92.7	377	348	386	838	773	858	108.5	97.7	
Greece. . .	8 ¹⁾	5 ¹⁾	3	177.9	265.0	209	89	37	464	197	82	235.3	564.4	
Italy . . .	367	357	339	102.7	108.1	15,982	17,445	15,390	35,516	38,767	34,199	91.6	103.8	
U. S. S. R. . .	385	368	325	104.8	118.6 ²⁾	8,929	7,381	5,218 ³⁾	19,841	16,402	11,596	121.0	171.1	
United States	1,068	1,088	856	98.2	124.7	23,536	24,017	18,683	52,303	53,372	41,518	98.0	126.0	
Burma ⁴⁾ . .	12,529 ⁴⁾	12,534 ⁴⁾	12,296	100.0	101.9	180,186	152,943	163,762	400,412	339,873	363,916	117.8	110.0	
Chosen . . .	3,947	4,017	4,092	98.3	96.5	98,541	109,645	72,465	218,975	243,651	161,031	89.9	136.0	
French Indo- china:														
Annam(first semester).	1,180	798	968	147.8	121.8	8,199	6,621	8,446	18,220	14,712	18,768	123.8	97.1	
*Annam (se- cond se- mester).	1,556	...	1,399	...	111.3	18,078	...	12,538	40,172	...	27,862	...	144.2	
*Cambodia . .	1,925	1,679	...	...	...	...	17,174	12,576	...	38,164	27,947	...	...
*Cochinchina .	5,703	5,314	5,135	107.3	111.1	...	56,865	52,918	...	126,364	117,594	...	...
*Laos . . .	1,097	988	1,046	111.0	104.9	...	4,806	6,742	...	10,680	14,981	...	...
Tonkin (fifth month).	1,205	1,050	1,212	114.8	99.4	14,727	11,874	13,455	32,726	26,386	29,900	124.0	109.4	
Tonkin(tenth mont . .	2,120	1,992	2,006	106.4	105.7	28,396	23,494	23,402	63,100	52,208	52,004	120.9	121.3	
India ⁵⁾ . . .	72,574	72,554	71,716	100.0	101.2	792,982	900,139	872,257	1,762,148	2,000,270	1,938,310	88.1	90.9	
Japan . . .	7,893	7,877	7,849	100.2	100.6	269,517	271,361	251,935	598,914	603,012	559,839	99.3	107.0	
Manchukuo . .	1,023	528	...	...	...	15,962	15,508	8,250	35,471	34,462	18,334	102.9	193.5
Siam ⁵⁾ . . .	7,691 ⁴⁾	7,273 ⁴⁾	6,996	105.7	109.9	108,851	100,436	100,658	241,887	223,188	223,680	108.4	108.1	
Taiwan . . .	1,545	1,536	1,664	100.6	92.9	40,168	37,779	36,699	89,260	83,952	81,552	106.3	109.5	
Turkey . . .	70	70	90	...	...	1,383	1,641	2,189	3,074	3,647	4,864	84.3	63.2
Egypt . . .	495	273	462	181.0	107.0	15,987	8,207	13,213	35,527	18,237	29,361	194.8	121.0	
TOTAL . . .	114,118	112,829	111,421	101.1	102.4	1,623,932	1,688,928	1,606,443	3,608,676	3,753,109	3,569,812	96.2	101.1	

* Countries not included in the totals. — 1) Sown area. — 2) Planned. — 3) Final report. — 4) Area matured. — 5) Second report.

British Guiana: It was reported in January that rice milling had been affected by unsuitable weather conditions which, however, had been favourable for the planting of the short crop.

Taiwan: Sowing of first rice crop has commenced in the seedling beds in the northern section, and is finished in the central section.

Netherlands Indies: Java and Madura. — The Department of Agricultural Statistics of the Central Statistical Office communicates the following details on the rice area:—

	1939 acres	1938 acres
<i>Area harvested in January:—</i>		
Wet padi	156,200	137,900
Dry padi	18,800	18,000
<i>Area of standing crops at the end of January:—</i>		
Wet padi	5,251,300	4,878,000
Dry padi	866,900	903,700

Indochina: Yields of floating rice were particularly high in Cambodia, where harvesting and threshing were nearly finished. Sowing and transplanting of the dry-season crop were proceeding at the end of January. In Cochinchina harvesting of early rice was completed and that of mid-season rice was progressing rapidly at the end of January in good conditions. Standing crops were in good condition. Flowering and ripening of main crop occurred in good conditions and a good harvest was expected. The late crops were flowering and looked well. Condition of after-flood rice was normal. The harvest of late rices (eleventh and twelfth months) gave variable but, on the whole, apparently satisfactory yields.

Transplanting of fifth-month rice in Tonkin and first-semester rice (third and fifth months) in Annam was carried out in satisfactory conditions. As a result of rains, growth was vigorous and the crops in most provinces looked well. In Tonkin, however, the mildness of the temperature was unfavourable for growth.

British Malaya: The dry weather experienced in December did not appear to have affected adversely the padi crop; in fact, where the crop had reached the harvesting stage, the absence of rain was a great advantage. Harvesting was in full swing in most parts of the country and in some of them it had already been completed. Reports from the various districts were in general satisfactory.

Current information on Potatoes.

France: In spite of excessive humidity, the preparation of the land was carried out in fairly good conditions in February and in the first decade of March.

Hungary: At the end of February, preparations for potato planting was nearly finished. The tubers of last year's crop have generally kept well during the winter.

Italy: Planting of early potatoes was continued in the first half of February in favourable conditions. A start was made with main crop plantings in the second half of the month.

Argentina: Potatoes were being lifted in the province of Buenos Aires in February. Yields were low in the south and average to good in the central and northern parts of this province. Yields were generally good in Santa Fé and satisfactory on the whole in other producing areas.

Algeria: The growth and yields of early varieties were unsatisfactory in parts of Alger and Oran. At the end of February the condition of spring crops was satisfactory.

Tunisia: The lifting of autumn potatoes and the planting of spring varieties was in full swing at the end of February. The cultivation of spring potatoes is increasing every year in the Bizerta area.

Area and Production of Potatoes.

COUNTRIES	AREA					PRODUCTION							
	1938 and 1938-39	1937 and 1937-38	Average 1932 to 1936 and 1932-33 to 1936-37	1938 and 1938-39	Average 1932 to 1936 and 1932-33 to 1936-37	1938 and 1938-39	1937 and 1937-38	Average 1932 to 1936 and 1932-33 to 1936-37	1938 and 1938-39	1937 and 1937-38	Average 1932 to 1936 and 1932-33 to 1936-37	1938 and 1938-39	Average 1932 to 1936 and 1932-33 to 1936-37
	ooo acres					ooo bushels of 60 lb.							
	1938 and 1938-39	1937 and 1937-38	Average 1932 to 1936 and 1932-33 to 1936-37	1938 and 1938-39	Average 1932 to 1936 and 1932-33 to 1936-37	1938 and 1938-39	1937 and 1937-38	Average 1932 to 1936 and 1932-33 to 1936-37	1938 and 1938-39	1937 and 1937-38	Average 1932 to 1936 and 1932-33 to 1936-37	1938 and 1938-39	Average 1932 to 1936 and 1932-33 to 1936-37
*Albania . .	...	1	1	...	...	...	72	24	...	120	40	...	...
Germany (including Austria) . .	7,652	7,674	7,531	99.7	101.6	1,181,682	1,298,527	1,048,253	1,969,430	2,164,169	1,747,054	91.0	112.7
Belgium . .	364	390	407	93.5	89.6	71,836	68,142	77,703	119,725	113,567	129,503	105.4	92.4
Bulgaria . .	49	54	36	90.9	135.8	1,575	3,220	2,056	2,625	5,366	3,427	48.9	76.6
Denmark . .	195	199	185	97.9	105.6	30,644	29,189	28,698	51,073	48,648	47,829	105.0	106.8
*Spain . .	...	...	2) 1,103	...	...	...	...	2) 110,742	...	...	2) 184,566	...	...
Estonia . .	193	187	175	103.3	109.9	21,994	21,729	20,050	36,656	36,214	33,416	101.2	109.7
Finland . .	226	214	203	105.5	111.6	29,101	30,589	26,925	48,501	50,981	44,874	95.1	108.1
France . .	3,468	3,555	3,483	97.6	99.6	376,865	350,787	341,849	628,096	584,633	569,736	107.4	110.2
Greece . .	53	61	44	86.7	118.7	3,153	4,264	2,377	5,254	7,107	3,962	73.9	132.6
Hungary . .	720	729	722	98.7	99.7	51,086	56,424	41,340	85,141	94,039	68,899	90.5	123.6
Ireland . .	327	327	340	100.0	96.1	55,123	60,622	58,488	91,872	101,036	97,480	90.9	94.2
Italy . . { s)	85	78	70	107.8	120.0	8,051	7,487	4,981	13,418	12,477	8,302	107.5	161.6
Latvia . . { t)	969	965	982	100.4	98.6	63,614	63,334	54,093	106,021	105,554	90,154	100.4	117.6
Lithuania . .	340	314	276	108.3	123.4	38,611	39,287	31,421	64,350	65,476	52,367	98.3	102.9
Luxembourg . .	460	456	439	100.8	104.8	46,699	55,335	44,376	77,830	92,223	73,958	84.4	105.2
Malta . .	43	43	41	99.1	104.9	6,296	4,527	4,047	10,494	7,545	6,745	139.1	155.6
Norway . .	9	10	8	89.0	111.7	629	755	521	1,049	1,258	869	83.4	120.7
Netherlands: p. for consumption . .	132	128	123	103.2	107.9	20,671	18,972	20,612	34,452	31,619	34,352	109.0	100.3
p. for starch . .	274	278	305	98.7	89.9	...	...	...	...	...	...	...	...
Poland . .	69	63	62	111.2	111.7	62,281	44,200	50,749	103,799	73,665	84,580	106.6	95.7
*Portugal . .	7,488	7,365	6,908	101.7	108.4	761,881	886,724	699,124	1,269,777	1,477,843	1,165,183	85.9	109.0
*Romania: single crop . .	...	75	80	...	...	...	13,141	12,686	...	21,902	21,143	...	...
p. with maize . .	476	533	502	89.2	94.8	...	42,463	38,507	...	70,771	64,178	...	...
United Kingdom: England & Wales . .	...	242	214	...	...	...	3,977	3,087	...	6,628	5,144	...	...
Scotland . .	475	455	486	104.3	97.7	78,086	70,022	71,313	130,144	116,704	118,854	111.5	109.5
*Northern Ireland . .	135	135	141	99.5	95.5	20,563	20,653	22,938	34,272	34,421	38,229	99.6	89.6
Sweden . .	123	125	136	98.5	90.9	...	19,443	20,916	...	32,405	34,860	...	...
Switzerland . .	...	333	328	...	...	41,283	41,603	42,751	68,803	69,337	71,250	99.2	96.6
Czechoslovakia . .	123	121	115	101.8	106.9	16,513	19,353	15,777	27,521	32,255	26,295	85.3	104.7
Slovakia . . { s)	102	104	98	97.9	103.7	9,694	9,157	7,197	16,157	15,261	11,995	105.9	134.7
Slovenia . . { t)	1,785	1,810	1,746	98.6	102.2	207,001	263,392	193,119	344,994	438,978	321,859	78.6	107.2
*Yugoslavia . .	...	173	177	...	...	...	8,475	8,373	...	14,125	13,955	...	...
via . . { t)	...	484	459	...	...	...	26,824	25,148	...	44,706	41,913	...	...
Total Europe . .	26,069	26,048	25,254	100.1	103.2	3,204,932	3,482,532	2,925,117	5,341,454	5,804,106	4,875,103	92.0	109.6
*U. S. S. R. . .	16,578	18,303	16,235	90.6	102.1	...	...	1,174,642	...	...	1,957,698	...	...
Canada . .	522	531	525	98.2	99.3	35,938	42,547	41,708	59,897	70,912	69,513	84.5	86.2
United States . .	3,008	3,174	3,432	94.8	87.6	221,578	236,483	221,176	369,297	394,139	368,627	93.7	100.2
Cyprus . .	6	7	6	84.3	106.8	...	504	682	...	1,136	737	74.0	114.0
*Palestine . .	...	2	1	...	...	...	210	51	...	350	85	...	...
*Syria and Lebanon . .	...	30	17	...	...	...	2,636	869	...	4,393	1,447	...	...
Turkey . .	...	136	115	...	...	6,588	4,111	3,009	10,979	6,851	5,014	160.3	219.0
Italian East Africa: Eritrea . .	...	1) 18	1) 18	94.9	96.7	...	2	5	...	4	8	...	...
Algeria . . { s)	...	26	23	...	...	1,468	1,172	952	2,447	1,954	1,587	125.2	154.2
Egypt . . { t)	...	10	8	...	...	...	1,726	1,247	...	2,876	2,078	...	...
Tunisia . .	...	6	5	...	...	...	995	768	...	1,659	1,280	...	...
Dutch Indies: Java and Madura . .	19	26	42	73.5	46.1	...	...	1,772	...	...	2,953	...	...
*Chile . .	...	126	128	...	...	...	9,644	10,322	...	16,073	17,203	...	...
*New Zealand . .	...	23	24	...	...	...	3,288	2,762	...	5,480	4,604	...	...
TOTALS . .	29,758	29,914	29,350	99.5	101.3	3,471,008	3,767,527	3,192,404	5,784,914	6,279,098	5,320,581	92.1	108.7

* Not included in the totals. — s) Early potatoes. — t) Late potatoes. — 1) Under 1,000 acres. — 2) Average 1932 to 1935. — 3) Average 1935 and 1936.

The Acreage under Sugar-beet in 1939.

The first replies have now been received to the usual annual enquiry conducted by the Institute among the Governments of the various beet-growing countries and the associations of sugar manufacturers on the first estimates of acreage under sugar-beet this year.

The replies, however, are still too few to permit the construction of a table. Accordingly, the reports received are simply passed on and a table will be made when our information is completed next month with the replies from the remaining countries.

The Secretary General of the Ministry of Agriculture of Belgium communicates that in the first half of March the sowing of beet had not yet begun and accordingly it is not yet advisable to make an estimate. While it is believed that the poor financial results of the 1938-39 sugar season will affect unfavourably sowing for this year's crop, it must be remembered that 81 per cent. of the winter wheat crops and 97 per cent. of the winter barley were destroyed by the severe frosts of last December, and it is possible that a part of the area abandoned may be used for other crops, particularly sugar-beet.

The Statistical Office of the Kingdom of Bulgaria communicates that, in accordance with the agreement between the sugar manufacturers and the Ministry of Agriculture, the area to be planted to sugar-beet this year will be 18 per cent. larger than that of 1938.

The Finnish Association of Sugar Manufacturers reports that the acreage under beet this year will be about 35 per cent. less than last year.

The National Consortium of Sugar Manufacturers of Genoa writes that since, at the middle of March, the terms of the contracts for beet cultivation had not been settled, it is not possible to give precise estimates, but it is believed that the aggregate acreage in Italy this year may be about 11 per cent. more than last year.

The Statistical Bureau of the State of Latvia forecasts a small decline in area compared with last year.

The Central Statistical Office of the Polish Republic reports that the acreage under sugar-beet this year will be about 10 per cent. larger than in 1938.

The Secretary of the British Sugar Commission estimates that the beet area this year will be about 5 per cent. larger than last year.

The Statistical Bureau of the Central Trade Administration of Sweden states that according to the preliminary estimate the acreage under beet this year will be practically the same as in 1938.

The Secretariat of Swiss Farmers estimates that in Switzerland there will be an increase in acreage under beet of about 22 per cent. on last year.

The Association of Sugar Manufacturers of the Kingdom of Yugoslavia estimates that there will be a large increase in the cultivation of sugar-beet, amounting to about 50 per cent., over last year's figure.

Other countries have already announced that they will shortly send their first forecasts. It will thus be possible to publish in the April Crop Report a table giving this year's estimates of sugar-beet acreage compared with last years and the average.

E. R.

Current information on Sugar.

France: In spite of excessive humidity, the preparation of the land proceeded in fairly good conditions in February and the first decade of March.

Hungary: Preparation of land for sugar-beet sowings began at the end of February.

Italy: The sowing of sugar-beet began in the second half of February.

Production of Beet-sugar (raw).

COUNTRIES	PRODUCTION (Sept. 1 - Febr. 28)		TOTAL PRODUCTION DURING THE SEASON			% 1938-39	
	1938-39	1937-38	1938-39 (a)	1937-38	Average 1932-33 to 1936-37	1937-38	Average
	thousand centals					= 100	= 100
Germany . . . . .	...	...	c) 46,817	52,193	37,859	—	—
Belgium	4,234	5,198	4,266	5,234	5,488	82	78
Bulgaria	—	—	444	621	441	72	101
Denmark . . . . .	...	...	4,189	5,269	4,328	79	97
Spain . . . . .	...	...	d) 2,976	d) 3,331	5,412	89	55
Finland	324	243	333	243	197	137	169
France	b) 18,595	b) 21,201	19,842	21,367	21,913	93	91
Hungary . . . . .	...	...	3,042	2,448	2,731	124	111
Ireland . . . . .	...	...	1,334	2,008	1,418	66	94
Italy	8,867	7,852	8,867	7,852	7,269	113	122
Latvia	—	—	735	996	937	74	78
Lithuania	—	—	459	633	400	72	114
Netherlands	4,487	5,197	4,808	5,202	5,300	92	91
Poland	b) 12,033	b) 12,391	12,125	12,391	9,299	98	130
Romania . . . . .	...	...	3,682	1,808	2,374	204	155
United Kingdom	b) 7,206	b) 9,392	7,206	9,392	11,688	77	62
Sweden . . . . .	...	...	6,442	7,634	6,198	84	104
Switzerland . . . . .	...	...	287	267	189	107	151
Czecho-Slovakia . . . . .	...	...	11,585	16,720	13,621	—	—
Yugoslavia . . . . .	...	...	1,196	824	1,826	230	104
Total Europe (1) . . . . .	...	...	141,335	156,433	138,888	90	102
U. S. S. R. . . . .	...	...	55,116	55,116	32,060	100	172
Total Europe (2) . . . . .	...	...	196,451	211,549	170,948	93	115
Canada	—	—	1,642	1,369	1,475	120	111
United States	—	—	34,647	27,478	28,454	126	122
Total North America	—	—	36,289	28,847	29,929	126	121
Japan	—	—	1,120	1,113	769	101	146
Manchukuo	—	—	463	260	85	178	547
Turkey	—	—	1,323	1,263	1,288	105	103
Total Asia	—	—	2,906	2,636	2,142	110	136
GENERAL TOTALS (1)	—	—	180,530	187,916	170,959	96	106
(2)	—	—	235,646	243,032	203,019	97	116

(1) Not including U. S. S. R. — (2) Including U. S. S. R. — (a) Approximate data. — (b) Production to the end of January. — (c) Present territory. — (d) Licht's estimate.

Argentina: Sugar-cane crops in Tucumán, Salta and Jujuy were in very good condition in February as a result of the plentiful and well distributed rains of February. The growth of plantations, which had already been affected by the summer drought, was normal in February in the Chaco and the north of Santa Fé.

The condition of the sugar-beet crops was good in February in the irrigated areas in the south of the province of Buenos Aires and average in other places.

British Guiana: It was reported in January that weather conditions had been favourable for the coming cane crop.

Jamaica: It was reported in January that the sugar crop was starting and that all factories would be working by early March.

St. Lucia: It was reported in January that the growing sugar canes were recovering well from the floods.

Trinidad: It was reported in January that weather conditions were good for the commencement of the grinding of the 1939 cane crop but the abnormal weather conditions early last year had affected the sucrose content of the canes.

Taiwan: Growing conditions of the cane are generally satisfactory.

Area and Production of Sugar-beet.

COUNTRIES	AREA					PRODUCTION								
	1938	1937	Average 1932 to 1936	% 1938		1938	1937	Average 1932 to 1936	1938	1937	Average 1932 to 1936	% 1938		
				1937 to 1936	Average							1937	Average	
			= 100					= 100			= 100			= 100
Germany (1,2)	1,337	1,225	945	109.2	141.4	367,108	367,679	242,829	18,355	18,384	12,141	99.8	151.2	
Belgium . .	122	119	128	102.4	94.9	26,492	30,336	35,133	1,325	1,517	1,757	87.3	75.4	
Bulgaria . .	29	26	19	111.3	149.9	3,117	4,614	3,248	156	231	162	67.6	96.0	
Denmark (2)	146	99	99	147.5	147.0	29,763	33,169	34,871	1,488	1,658	1,744	89.7	85.4	
Finland (3)	13	8	7	154.6	183.4	2,885	1,940	1,584	144	97	79	148.7	182.2	
France (4)	772	786	785	98.2	98.3	179,020	191,063	196,121	8,951	9,553	9,806	93.7	91.3	
Hungary . .	109	116	112	94.2	97.7	23,218	22,324	20,322	1,161	1,116	1,016	104.0	114.3	
Ireland . .	51	62	39	83.1	132.5	9,329	13,063	9,227	466	653	461	71.4	101.1	
Italy . . .	336	330	231	101.8	145.1	71,723	77,500	54,000	3,586	3,875	2,700	92.5	132.8	
Latvia . . .	36	34	31	105.1	114.5	5,071	6,173	5,493	254	309	275	82.1	92.3	
Lithuania .	20	20	14	99.6	144.2	3,166	4,094	2,529	158	205	126	77.3	125.2	
Netherlands	104	104	106	100.8	98.9	34,613	34,875	37,178	1,731	1,744	1,859	99.2	93.1	
Poland . . .	380	363	280	104.3	135.4	69,720	71,553	52,265	3,486	3,578	2,613	97.4	133.4	
Romania . .	117	73	81	160.2	144.3	17,601	10,997	11,828	880	550	591	160.1	148.8	
Unit. King.:														
Engl. and W.	328	306	346	107.4	94.8	47,152	56,627	72,869	2,358	2,831	3,644	83.3	64.7	
Scotland . .	7	7	5	101.3	153.1	1,411	1,523	1,015	71	76	51	92.6	139.0	
Sweden . . .	125	137	121	91.9	104.0	40,430	45,787	39,332	2,021	2,289	1,967	88.3	102.8	
*Switzerland .	...	6	4	...	...	...	1,907	1,368	...	95	68	...	...
*Czecho-Slov.	408	448	376	91.1	108.5	...	131,992	86,102	...	6,599	4,305	...	...
*Yugoslavia .	72	52	80	136.6	89.6	...	8,910	12,454	...	445	625	...	...
U. S. S. R. .	5) 2,916	5) 2,943	3,169	99.1	92.0	367,732	481,932	264,330	18,386	24,096	13,216	76.3	139.1	
Canada . . .	48	47	51	102.6	94.6	10,540	8,360	9,826	527	418	491	126.1	107.3	
U. S. A. . .	931	752	811	123.8	114.8	225,840	174,930	178,220	11,292	8,749	8,911	129.1	126.7	
*Turkey . . .	...	73	56	...	...	...	6,415	8,101	...	321	405	...	...
TOTALS . .	7,927	7,557	7,380	104.9	107.3	1,535,931	1,838,589	1,272,220	76,796	81,929	63,610	93.7	120.7	

* Not including in the total. — (1) Including Austria. — (2) Not including crops for seed. — (3) Sugar-beet for factories. — (4) Including beets for distilling. — (5) Figures established from the Plan.

Netherlands Indies: Rainfall was very uneven in the second half of February. It was heavy enough in some areas to cause flooding, as in Sidoardjo, while in others it was very light. Ploughing had begun in some places. Growth of cane was satisfactory in many areas and flowering was plentiful. Borers were reported from many fields but white lice and yellow streak were less in evidence.

In the first half of March also there was very irregular rain and there were reports of a large number of sugar-canes laid (*Aneta*).

Production of Cane-sugar.

COUNTRIES	1938-39 (1)	1937-38	Average of 1932-33 to 1936-37	1938-39 (1)	1937-38	Average of 1932-33 to 1936-37	% 1938-39	
							1937-38	Average
	thousand centals			short tons			= 100	= 100
AMERICA.								
Antigua	573	493	523	29,000	24,640	26,125	116	110
Argentina	10,362	8,170	8,074	520,000	408,480	403,673	127	128
Barbados	3,248	2,496	2,542	162,400	124,784	127,124	130	128
Brazil	26,456	22,827	19,949	1,300,000	1,141,300	997,456	116	133
Cuba	61,730	67,199	55,589	3,100,000	3,360,000	2,779,408	92	111
Ecuador	419	397	402	21,000	20,000	20,081	106	104
United States (La. & Fl.)	11,140	9,240	6,408	557,000	462,000	320,439	121	174
British Guiana	3,968	4,368	3,724	200,000	218,000	186,173	91	107
Jamaica	2,588	2,647	1,803	129,416	132,371	90,163	98	143
Martinique	1,213	1,213	1,053	61,000	61,000	52,646	100	115
Mexico	7,772	6,687	5,483	388,602	334,325	274,142	116	142
Peru	10,141	9,061	8,933	510,000	453,000	446,652	112	114
Puerto Rico	17,417	19,936	18,392	870,000	996,800	919,577	87	95
Dominican Republic	9,215	9,149	9,131	461,000	457,000	456,557	101	101
St. Kitts	717	626	642	35,840	31,287	32,125	115	112
Trinidad	3,527	2,993	2,925	180,000	149,652	146,248	118	121
Venezuela	540	540	486	27,000	27,000	24,295	100	111
Total America	171,026	168,042	146,059	8,552,258	8,401,649	7,302,884	102	117
ASIA.								
Taiwan	32,959	25,904	18,313	1,648,000	1,295,000	915,628	127	180
India	65,037	70,896	72,823	3,250,000	3,544,800	3,641,086	92	89
Japan	3,286	2,576	2,202	164,300	128,689	110,117	128	149
Java	34,172	30,841	19,888	1,710,000	1,542,037	994,406	111	172
Philippines	21,605	22,064	24,316	1,080,000	1,103,200	1,215,777	98	89
Total Asia	157,059	152,281	137,542	7,852,300	7,613,826	6,877,014	103	114
AFRICA.								
Egypt	3,527	3,532	3,223	176,000	176,600	161,171	100	109
Madagascar	265	238	243	13,000	11,900	12,000	111	109
Mauritius	7,081	6,919	5,593	354,100	345,920	279,627	102	127
Reunion	1,764	1,764	1,632	90,000	90,000	81,604	100	108
Union of South Africa	10,420	10,144	7,890	521,000	507,219	394,509	103	132
Total Africa	23,057	22,597	18,581	1,154,100	1,131,639	929,036	102	124
OCEANIA.								
Australia	17,637	17,829	14,692	880,000	891,400	734,582	99	120
Hawaii	20,701	20,272	20,311	1,035,000	1,013,600	1,015,529	102	102
Fiji Is.	3,086	3,197	2,905	150,000	160,000	145,264	97	106
Total Oceania	41,424	41,298	37,908	2,065,000	2,065,000	1,895,375	100	109
TOTALS	392,566	384,218	340,090	19,623,658	19,212,111	17,004,309	102	115

(1) Approximate data.

Indochina: The yield from red cane for the extraction of molasses was average in Annam. The crop of green cane for consumption is variable. In Cochinchina, growth was affected in January by the cessation of the rains.

Egypt: Cutting of the sugar-cane crop destined for sugar factories is in full swing. Yield per acre is normal. Preparation of land for the new crop is progressing. Planting of early areas has been started in provinces of Qena and Asuan. Germination is satisfactory. The area under sugar-cane in 1938 is estimated at 70,800 acres against 70,400 acres in 1937 and an average of 67,600 acres in 1932 to 1936; percentages, 100.6 and 104.7.

Mauritius: It was reported in January that weather conditions had improved and prospects for the new crop were more hopeful.

The World Wine Market in 1938-39.

I. — REVIEW OF WINE PRODUCTION AND MARKETS IN 1937-38.

Situation at the beginning of the season.

The *wine market situation* was very much better at the beginning of the 1937-38 season than it had been previously. Stocks of old wine left over from the very full vintages of 1933 and 1934 (excluding the normal seasonal carryover between the two seasons), had been reduced to about 200 million Imperial gallons (230 million American gallons). World production during 1937, (excluding the U. S. S. R.), estimated at 4,050 million Imperial gallons (4,850 million American gallons), was rather below the average production of the previous five years but larger than the average quantity marketed during this same period, namely 3,960 (4,760) million gallons for both consumption and industrial use (for distillation, vinegar, etc.), but excluding quantities reabsorbed by means of special intervention on the market. The excess of supplies over what one may call the normal disappearance was thus about 200 (230) million gallons, this latter being an approximate rounded figure which may be compared with 750 to 850 (900 to 1,000) million gallons in the years 1934 and 1935. This represented a surplus of 5 per cent. of the average quantities marketed, against 25 per cent. at the beginning of the 1935-36 season.

The significance of this surplus, however, can only be appreciated in relation to certain very variable natural factors which affect the wine market and industry.

First, it should be noted that wine production during 1937 though not very poor, as in 1936, was low rather compared with the productive capacity of vines. The carryover, though rather small, threatened to overload the market heavily if the crop of the following year should prove to be larger than normal. In view of the fact that wine production seems to oscillate at present around an average figure of 4,100 to 4,200 million Imperial gallons (4,900 to 5,000 million American gallons), a further increase in the total volume absorbed for consumption and industrial use appeared necessary, not only to unload the market temporarily but also, and more particularly to ensure its future equilibrium.

World Wine Production in 1937 and previous years (I).

	1937	1936	1935	1934	Average 1929-1933	Average 1924-1928	Pre-war average 1909-1913
Million Imperial gallons							
NORTHERN HEMISPHERE.							
France and Algeria	1,533	1,214	2,090	2,204	1,535	1,499	1,278
Italy (exporting country)	748	740	1,027	680	845	880	1,012
Spain, Portugal and Madeira (exporting countries) ⁽²⁾	(*) 550	(*) 420	497	706	614	609	405
Greece and Hungary (exporting countries) ⁽²⁾	174	143	176	141	132	110	(*) 130
Tunisia and Fr. Morocco (exporting countries)	44	37	48	51	33	22	9
Romania, Yugoslavia and Bulgaria	331	246	394	301	299	249	(*) 120
Germany, Austria, Czecho-Slovakia, Switzerland and Luxemburg (importing countries) ⁽²⁾	94	112	154	141	90	68	64
United States and Canada (importing countries)	213	126	172	108	(*) 90	(*) 90	(*) 45
Cyprus, Turkey, Aegean Islands, Palestine, Syria and Lebanon, Libya.	(*) 13	(*) 13	(*) 13	(*) 13	(*) 11	(*) 11	(*) 4
<i>Total Northern Hemisphere . . .</i>	<i>3,700</i>	<i>3,050</i>	<i>4,570</i>	<i>4,345</i>	<i>3,650</i>	<i>3,540</i>	<i>3,070</i>
SOUTHERN HEMISPHERE.							
Australia and Union of South Africa (exporting countries)	48	46	40	40	33	31	13
Chile (exporting country)	(*) 90	75	48	64	62	55	46
Argentina, Brazil, Uruguay, Peru	213	161	125	194	169	165	(*) 110
<i>Total Southern Hemisphere . . .</i>	<i>350</i>	<i>282</i>	<i>213</i>	<i>298</i>	<i>264</i>	<i>251</i>	<i>170</i>
WORLD TOTAL ⁽³⁾ . . .	4,050	3,330	4,780	4,640	3,910	3,790	3,240

(*) Approximate figure.

(1) The years are those of the crops harvested in March-April in the Southern Hemisphere, and in October-November of the same year in the Northern Hemisphere. — (2) For Spain, Greece, Hungary, Germany and Luxemburg, original figures expressed in must have been converted into their equivalent of wine. — (3) Not including U. S. S. R. (80 to 100 million Imp. gal.) and certain unimportant producing countries (Malta, Japan, Bolivia, Paraguay, Madagascar, New-Zealand), of which total production is less than 2 million Imperial gallons.

Considering economic factors only, there was reason to fear on the contrary, a certain falling off in demand. Moreover, the comparatively high prices on the markets in a fairly large number of producing countries were naturally bound to limit or reduce commercial consumption, particularly as the recurrence of another world economic crisis seemed likely to reduce the purchasing power of certain classes of consumers. Unless a considerable drop in prices were to take place at the beginning of the season, the commercial consumption of wine seemed likely to reach only with difficulty the level of the previous season. Moreover, the production of alcohol from wine had been developed in several countries beyond the absorptive capacity of the market and there was a rather heavy accumulation of stocks of alcohol. Accordingly, demand for industrial use did not seem likely to reach a very high level.

The market position seemed therefore on the whole to be rather heavy and this impression was confirmed by the statistical position in the various countries.

Total supplies were definitely excessive compared with the maximum requirements of previous years in a fairly large number of countries, among which were the two normally exporting countries, Portugal and Australia, several other countries whose exports had recently become rather substantial, namely Hungary, Romania, Turkey, French Morocco and Chile, and also the United States and Brazil. This group is comparatively large and there may also be added the three large viticultural importing countries of Europe - Switzerland, Austria and Czecho-Slovakia - where supplies were above normal.

The total production of Portugal was large, exceeding by 12.5 per cent. the average production of the years 1933 to 1936, which was absorbed only with difficulty, but there was heavy overproduction of Madeira and Port wines in particular. Production of *vinhos verdes* from grafted vines in delimited regions was 38,610,000 (46,360,000) gallons against 18,410,000 (22,110,000) gallons in 1936 and that of Madeira was 2,475,000 (2,972,000) gallons against 693,000 (832,000) gallons in 1936.

Australian production was 28 per cent. larger than the 1933-36 average and quantities in bond on June 30, 1937 amounted to 18,700,000 (22,400,000) gallons against 7,900,000 gallons (9,480,000) on June, 1935. Surplus production in 1937 compared with the 1933-36 average was 35 per cent. in Hungary, where, however, stocks of old wines were low, 29 per cent. in Romania, where there were large stocks of old wines, 30 per cent. in French Morocco; 25 per cent. in Brazil and nearly 100 per cent. in the United States, where old stocks were also high. Fairly large quantities of old wines were carried over from the previous year in Switzerland, Austria and Czecho-Slovakia.

In a number of other large vine-growing countries, namely, France and Algeria, Greece, Bulgaria, Tunisia, Argentina, and the Union of South Africa, which are nearly all exporting countries, the statistical situation was undoubtedly better, but the equilibrium between supply and demand was rather precarious and it was not even certain that it could be maintained in 1937-38. This equilibrium had been achieved as a result of the comparatively poor wine production of 1937 in the first three of these countries and it could only be maintained if demand did not fall off as a result of the factors mentioned above.

In France and Algeria, the surplus over expected disappearance was officially estimated at 35.2 (42.3) million gallons, a relatively low figure, but it probably reflected a decline in consumption and seemed very significant since production was below the 1933-36 average and stocks of old wines almost normal. Production in Greece was below normal but stocks, especially of Samos wines, were rather high and possibilities of exports to France rather doubtful. Supplies in Argentina at 187.0 (224.5) million gallons, could only be disposed of were internal consumption continued to increase at the rate of earlier years. There was a similar position in the Union of South Africa resulting from the large production of the year.

The only countries where the statistical situation was really sound and where supplies were even lower than normal or predictable requirements, were Italy, Spain, Yugoslavia and, among the large importing viticultural countries, Germany.

Supplies in Italy were very light, namely, 748 (898) million gallons resulting from the year's crop and 81.4 (97.7) million gallons of old wines against an average disappearance of 858 to 880 (1,030 to 1,057) million gallons and a maximum of 924 to 946 (1,110 to 1,136) million gallons in 1936-37.

Yugoslavia had a very small outturn and small stocks. Supplies in Germany fell short of requirements owing to the expansion of domestic demand.

International trade, which had developed in a remarkable way during the two preceding seasons, was bound to show the influence of two factors, first, in accordance with what has been said above, the rise in producers' prices, and, secondly, an accumulation of stocks in the importing countries, particularly in Great Britain. Despite the probable increase in the demand of certain importing wine producing countries, some decrease in the total volume of trade was therefore to be expected, and there might also be expected certain changes in the channels of trade as a result of the almost complete disappearance of Spanish wines from a number of large importing markets and of certain factors affecting the trade relations between exporting and importing countries.

The rather depressed state of the market in the majority of countries and the prospects of a contraction of trade threatened to counteract the general improvement in the *economic condition* of the wine industries. Since the very severe depression of 1934-35, the situation had improved steadily in most countries, partly as a result of the increase in commercial consumption and more particularly as a result of the rise in prices. There was reason to fear that, considering only the normal economic conditions of the market, both factors in the earnings of wine producers in 1937-38, namely, the volume of sales and producers' prices might decline, at least to a slight extent. In other words the economic equilibrium of the wine industry seems as difficult to maintain as the statistical equilibrium of the market. If a severe crisis was not to be anticipated, at least a recession in the market appeared probable.

This would have taken place in fact, if the market had been free and unorganized, but this was not the case and it will be useful to review rapidly the principal features of the policy of protection and regulation of the market and of the organization of the wine industry and trade, which were extended and developed in 1936 and 1937.

Government intervention and the organization of wine production and trade.

In general outline, without entering into the details of extremely complex legislation, Government measures may be classed under the following three headings.

1. Control and regulation of wine production:

(a) In regard to quality, limiting indirectly the volume of commercial production in almost all countries: fixing a minimum degree for commercial wines, restriction of production or prohibition of marketing of wines from ungrafted American stocks (direct hybrid producers) and wines from second pressing (second wine), regulation and limitation of mixtures or blends, protection of wines of

named origin and of known quality, organisation of the wine industry and its control (in Portugal, Greece and Italy). It should be noted with regard to this legislation that in those countries where it is most complete, particularly France, its application is considered as a fundamental factor in the disposal of supplies and in the equilibrium of the market.

(b) In regard to quantity, legislation is more rare: partial control in Portugal (Douro wines) and in Greece (Samos wines). Complete control in Argentina (elimination of a part of the crop of wine grapes).

2. *Measures for increasing onsumption:*

(a) On domestic markets, by the encouragement and financing of publicity: in France, Italy, Portugal, Hungary, Romania and Germany. Measures for developing subsidiary industries, particularly distillation, in Italy, Portugal, Spain, Hungary, Yugoslavia and Germany.

(b) On foreign markets, in almost all countries, by direct or indirect methods. For example, a system of indirect export bonuses exists in almost all countries (France and Algeria, Italy, Romania, etc.)

3. *Direct regulation and protection of markets:*

(a) Storage of supplies likely to be carried over from one season to another: in France and Algeria, Italy, Spain, Portugal, Greece, Hungary, Romania, Germany Switzerland and Australia. In the United States, Argentina, Australia and the Union of South Africa storage is normally done by industrial organisations;

(b) Absorption of supplies by distillation, if necessary, or, in some cases, by the concentration of must: in France and Algeria, Italy, Portugal, Spain, Greece, Hungary, Yugoslavia and Bulgaria;

(c) Staggering of sales or similar methods for regulating the marketing of supplies: in France, Algeria, and Italy; in Portugal, Greece and Tunisia on the domestic market, in Argentina (fixing the date at which the vintage of the year may be marketed);

(d) Maintenance of prices, either by staggering of sales based on a price agreement (France and Algeria) or by the fixing of a minimum market price (Italy, Hungary, Austria, Australia).

There are naturally remarkable differences in the nature and form of legislation enacting these various measures. In some cases, as in France, Algeria, Italy, Spain, Portugal, Argentina, Germany and French Morocco, it consists of a special wine statute. In other cases, it is contained in isolated or partial measures. Existing statutes were revised and developed in 1936 and 1937, including some which had only recently been promulgated, and many new measures were taken in the majority of countries in the course of these two years. For example, the wine statute in Italy was promulgated in June, 1937; in French Morocco in the same year; French legislation was motified in July 1937 and that of Argentina in January of the same year in Portugal, the *Junta nacional de Vinho* was created in October, 1937; in Hungary, a Consortium for the valorisation of viticultural products, a central cooperative of vine-growers, and

a wine publicity office were set up, and State control was more and more directly established over the market. Romania also entered the field with the establishment of the National Committee of Vine-growers; there were new measures in Greece, Switzerland, Austria and Turkey (re-organization of the alcohol monopoly). There was thus a very great increase in legislation affecting the wine industry and trade during the 1936-37 season. Most countries established a system of controlled viticulture, and this fact inevitably exercised an important influence on the disposal of wine during the 1937-38 season and on the market situation and the viticultural economy.

Parallel with this development, there has been an even more profound transformation in the viticultural economy. This transformation is partly the direct result of the measures taken to find immediate palliatives for the crisis of over-production and partly the result of a more completely organised programme of control. It is apparent in one these forms in the majority of viticultural countries, particularly in Europe and in certain overseas countries.

Certain subsidiary industries – particularly distillation of wine products and the extraction of grape-pip oil or cream of tartar – tend to occupy an increasingly important position in the general economy of a large number of countries. The narrow objective of absorption of surplus wine production and the enlargement of the industry's outlets have been replaced in a number of countries by a much larger conception which gives the by-products an important position in view of their use for fuel, lubricants or chemical production. The wine industry becomes a source of raw material of special value for supplying certain national requirements.

The by-product industries lose their character of subsidiary industries and acquire an importance of their own in national economics which tend more and more to autonomy and autarchy. In certain countries the production of by-products is regulated no longer in relation to the condition of the wine industry and as a means of absorbing surplus production, but as an important element in the national economy. In other words, the State takes control of the greater part of the production of wine alcohol for denaturation and for transformation into fuel not only for the establishment of reserves for exceptional requirements, but also in order to increase production in order to satisfy increased demand. One exception, however, should be noted, namely in Switzerland, where the State is attempting to discourage wine distillation, but this is the exception that proves the rule of the general trend of the wine industry, which is developing particularly in response to the requirements of pure alcohol in countries where the latter have increased.

Trade in wine has also become in a number of countries an essential part of the controlled national economy. Exports have been assisted and encouraged, and imports have been regulated and restricted, as important factors in foreign trade irrespective of the internal viticultural situation.

The wine industry and trade thus increase steadily in importance in the general national economy and their markets expand.

This development is accompanied by an organic transformation of the industry. It has involved a re-organisation of the alcohol market in France and

Italy (establishment of the *Ente nazionale dei distillatori di 2^a categoria*) and in other countries (direct control of the alcohol industry). It has in particular made necessary the creation of new industrial plants in Italy and French Morocco. The wine industry and trade, moreover, have had to be equipped with cooperative cellars or warehouses and organised on a professional basis in Italy, Portugal, Greece, Hungary, Romania, Yugoslavia, Germany, and French Morocco to ensure storage, conservation of wines and the regulation of the market. There has thus taken place, under the more or less constant influence of the State, a veritable "industrialisation" of the viticultural economy on a general and advanced scale.

It is difficult to show statistically the increase in productivity of the distillery and other industries, for few figures are published. It may however be noted that the production of alcohol from wine (including not only the distillation of wines, but also of lees wine, of grape marc and second pressing wine) rose in France from an average of 15,530,000 Imperial gallons (18,650,000 American gallons) of alcohol 100° pure in 1929-30 to 1933-34 to an average 30,470,000 (36,590,000) in the last four seasons, and from a little over 100,000 *hectanhydres* in 1933-34 to 260,000 recently in Italy. The percentage of supplies (production plus imports) used in Germany for industrial purposes is at present estimated at between 40 and 60 per cent. whereas in 1913 it was less than 8 per cent. In Yugoslavia distillation absorbed up to 10 per cent. of the wine production and the proportion is about the same in French Morocco, showing a considerable relative increase. In Australia the amount of wine and lees of wine distilled has risen from 9,190,000 Imperial gallons (11,040,000 American gallons) in 1934-35 to 16,610,000 (19,940,000). On the whole it may be estimated that the average production of alcohol from wine has risen from 50 to 200 per cent. or in some cases even more in the last three or four years. The capacity of industrial production is considerably higher.

The other by-product industries have not developed to the same extent except in a few countries, especially Italy, where there is now being produced annually 2,200,000 Imperial gallons (2,500,000 American gallons) of grape pip oil and 4,400 centals of cream of tartar, whereas three or four years ago production was negligible. Germany unofficially estimated to produce 220,000 (260,000) gallons of grape pip oil. No statistics are available for other countries but, except perhaps for France and one or two other countries, production of pip oil and cream of tartar is not very large.

The Commercial Year 1937-38.

The main features of the past season were as follows: a comparatively small total consumption compared with the volume of supplies; marked changes in the movement of the international trade in wine; greater security and even in some cases an improvement in the gross income of producers, with certain important exceptions.

Internal markets: consumption and industrial uses. — On the whole, internal wine consumption declined compared with the previous season. It continued to increase in certain minor consuming countries, particularly the United States and perhaps in Switzerland, Czechoslovakia and Belgium, but "paying" commercial consumption decreased in France and Algeria, Italy and Argentina and also appears to have been smaller in Greece, Romania and Yugoslavia. The rise in producers' prices for wine at the end of 1936-37 and certain general economic factors, which began to have effect at the beginning of the season, seem to have been the principal causes of this decline. In France, taxed commercial consumption was 1,099.9 (1,320.9) million gallons for the twelve months September 1937 to August 1938 compared with 1,117.5 (1,342.0) million gallons in 1936-37, 1,139.5 (1,368.4) million gallons in 1935-36 and an average of 1,093.3 (1,312.9) million gallons in the years 1929-30 to 1933-34. In Italy also, there was a slight decrease in the quantities subject to consumption tax on their entry into 94 provincial capitals 202.4 (243.0) million gallons against 204.6 (245.7) million gallons. In Argentina, internal consumption was only 149.6 (179.6) million gallons against 160.6 (192.8) million gallons in 1936-37 (August 1 to July 31) and 140.8 (169.1) million gallons in 1935-36. On the other hand, domestic consumption by the producers themselves, *i. e.* "non-paying" consumption was low in France-Algeria (about 370 (450) million gallons against 290 (340) million in 1936-37, 540 (680) million in 1934-35 and 407 (488) millions, on the average in the years 1929-30 to 1933-34) but fell off in Italy and Yugoslavia owing to the small volume of supplies. The aggregate actual consumption of wine seems to have been lower than in 1936-37 but to have exceeded the average of the previous period.

The demand for industrial uses was larger than in the previous season in certain exporting countries where distillation or concentration of must are resorted to for the absorption of surplus supplies. It increased in France-Algeria (production of wine alcohol was nearly 8.8 (10.6) million gallons in 1937-38, including 3.3 (4.0) millions compulsorily distilled, 2,490,000 (2,990,000) gallons in 1936-37, 37,370,000 (44,880,000) gallons in 1934-35 and 5,920,000 (7,110,000) gallons, on the average, in the five years 1929-30 to 1933-34) French Morocco, Hungary and Australia (the quantity of wine used for the manufacture of grape brandy and fortifying spirit was 17.3 (20.8) million gallons, that is 12 per cent. more than in 1936-37 and 80 per cent. more than the average of 1929-30 to 1934-35), but it increased also in Germany. Although production declined compared with 1936-37 in importing countries, namely, Italy, Yugoslavia and probably also the United States and Switzerland, it was higher than in previous years.

The increase in the quantity thus disposed of is hardly equal to the small surpluses in three of four viticultural countries of the Northern Hemisphere: France-Algeria, French Morocco and Hungary. In most of the other exporting countries it was insufficient to absorb the surplus either because distillation did not develop to the necessary extent or because stocks of alcohol were already excessive, or more often because its utilisation the use as fuel alcohol is very limited in these countries.

International trade: imports and exports. — On the whole, the demand for wine on the importing markets was about 6.5 per cent. below that of the previous year but it was large compared with the three previous years. The rather substantial changes in imports were due to special local causes. What is important is that considerable changes have taken place in the distribution of international trade, both in regard to quality and to countries of origin. These changes are the direct outcome of the special characteristics of the 1937-38 season.

The principal modifications in imports are seen first in the exchanges between the major viticultural countries: France, Italy, Portugal and their colonies. Imports from the home countries into the French and Italian colonies decreased but exports from Portugal to her colonies increased fairly considerably. These are the only changes which directly reflect the influence of the changes of internal prices to producers on consumption in the importing countries. Moreover, the imports from foreign countries into France decreased compared with 1936-37, but the volume imported in that year was exceptional in view of the abnormal deficit of Franco-Algerian production, and the 1937-38 figure may be considered as normal, corresponding to the conditions of demand for quality wines of special origin and to the requirements of trade relations with certain countries. In addition the same tendency was shown in the imports of the United States. A decrease took place in the imports of Great Britain and certain non-viticultural countries, which are minor importers, namely, the Netherlands, Denmark, Norway and Egypt, but in the case of Great Britain this decrease reflects the existence of very large stocks held in bond at the end of the 1936-37 season and is partly due to the difficulty of trade with Spain, which was a large supplier of these countries. Several of the non-viticultural countries, including Belgium, Poland, Finland and Sweden increased or maintained their imports. Most of the importing viticultural countries, including Switzerland, Austria, Malta and in particular, Germany also took more. These increases did not offset the decreases that occurred elsewhere but demand varied within narrow limits, and its variations do not show a general movement such as occurred in previous years.

The only noticeable tendency is a slight downward movement. This tendency might undoubtedly develop if prices remain high in certain large exporting countries and if the rise was accentuated, but so far the effect of the rise in nominal prices to producers on the volume of consumption has been slight or even, in the importing countries, largely offset by the depreciation of the currency of certain exporting countries and by measures taken to assist exports. In fact, expressing producers' prices in the currency of the importing countries and taking into account the advantages of clearing agreements and other assistance to exports, it is seen that the modifications in these actual prices on the import markets do not correspond with those in nominal producers' prices.

The changes that have occurred in the provenance of imports are even more important than the changes in the total volume of international trade. These changes are very definite and constitute one of the most important features of the year from the point of view of international trade. On the one hand, there was an appreciable drop in exports, not only from Spain, but also from Italy and Portugal to foreign countries and on the other, an increase in exports

Imports of Wine.

1. — Principal importing countries (1).

Countries	Twelve months ending 30 September							Average 1926-27/ 1930-31
	1937-38	1936-37	1935-36	1934-35	1933-34	1932-33	1931-32	
	Thousand Imperial gallons							
(a) <i>France:</i>								
From foreign countries	4,360	10,470	5,130	6,840	15,070	48,660	19,970	68,930
From Algeria and Tunisia	(332,040)	(256,120)	(270,370)	(272,160)	(264,170)	(365,770)	(259,310)	(211,260)
Preceding crop.	1,794,720	960,960	1,673,130	1,746,730	1,138,720	1,090,420	1,305,140	1,164,980
(b) <i>United States:</i>	2,870	3,380	(²) 3,040	(²) 2,310	(²) 3,210	(²) 1,140	(²) 30	(²) 30
Preceding crop.	212,721	121,870	172,200	104,930	96,439	69,734	54,269	66,000
(c) <i>Other producing countries:</i>								
Germany	24,660	21,500	18,720	17,350	18,280	13,040	14,250	21,710
Switzerland	21,280	21,020	17,050	20,650	26,530	27,650	25,520	26,560
Czecho-Slovakia	(²) 1,640	1,810	1,700	1,660	1,670	1,870	2,570	5,820
Austria	1,490	1,110	1,500	1,360	1,100	1,630	4,730	8,900
Malta (²)	1,360	1,220	1,670	1,810	1,850	1,980	1,960	2,080
French Morocco	150	170	180	330	990	2,070	3,890	5,100
Total (¹)	(²) 50,700	46,830	40,820	43,160	50,420	48,240	52,920	70,170
Preceding crop	110,800	116,880	165,460	131,780	79,980	87,110	124,310	73,100
(d) <i>Non producing countries:</i>								
United Kingdom.	15,960	18,960	16,870	15,830	14,220	13,870	13,350	14,860
from foreign countries	(10,540)	(13,630)	(11,990)	(11,220)	(10,070)	(9,490)	(9,180)	(12,100)
from Empire countries	(5,420)	(5,330)	(4,880)	(4,610)	(4,150)	(4,380)	(4,170)	(2,760)
Belgium.	9,010	9,210	6,950	6,580	5,920	6,930	6,290	9,350
Netherlands	2,280	2,580	1,920	1,710	1,830	1,740	2,570	3,480
Egypt	1,300	1,450	1,430	1,290	790	1,890	2,160	5,820
Sweden, Denmark, Norway, Poland	4,280	4,260	3,930	3,570	3,120	2,790	3,370	4,360
Total (¹)	32,830	36,500	31,100	28,980	25,880	27,220	27,740	37,870
GENERAL TOTAL FOR THE 16 PRINCIPAL IMPORTING COUNTRIES, YEARS ENDING SEPTEMBER 30	(²) 90,800	9 ⁸ ,180	80,090	81,290	94,580	125,260	100,660	177,000

2. — Other imports by continent (7)

Continent	Twelve months ending December 31							
	1938	1937	1936	1935	1934	1933	1932	Average 1927-1931
	Thousand Imperial gallons							
Europe (Ireland, Italy) .	1,200	1,300	1,120	1,520	1,080	990	1,080	1,450
North America (French colonies, Mexico, Canada, Cuba) . . . . .	...	2,860	2,950	3,450	3,170	2,710	3,010	4,890
South America (Brazil, Argentina, Uruguay) . . . . .	...	3,080	2,900	2,820	2,530	2,860	2,420	8,270
Asia (Indochina, Neth. East Indies, Iran, China) ^(a)	3,500	3,960	3,890	3,670	3,560	3,280	3,540	4,360
Africa (French, Portuguese, Italian and Spanish colonies)	^(a) 20,000	20,900	22,330	13,770	13,220	13,370	13,510	14,300
Oceania (New Caledonia) .	^(a) 750	660	620	620	660	480	460	760
GENERAL TOTAL FOR THE MINOR IMPORTING COUNTRIES, CALENDAR YEARS. ^(a)	31,000	32,760	33,810	25,850	24,220	23,690	24,020	34,000

(1) Countries that imported more than 1,000,000 Imp. gals. in previous years. — (2) Year January 1 to December 31 1932 to 1938. — (3) Eleven months only. — (4) Representing about 93 % of the total imports of all producing countries. — (5) Total rounded up to 100,000 gals. with an addition of 150,000 gals. corresponding to one month's imports into Czecho-Slovakia. — (6) Representing about 60 % (58 % in 1934, and 63 % in 1935) of the total imports of all non-producing countries. — (7) Countries importing more than 200,000 imp. gals. are indicated in brackets, in order of importance. — (8) Approximate total.

from France, Hungary, Greece, North Africa, Chile, the Union of South Africa, Romania, Bulgaria and even Turkey and Palestine.

The relative level of prices on import markets and the economic relations between exporting and importing countries partly explain individual variations in exports. Moreover, the very substantial decline in the shipments of red wines from Spain has naturally turned demand towards wines of similar quality. Wines of the south of France, of North Africa and South Africa have benefited on several markets from the disappearance of Spanish red wines. These obvious causes, however, were not the only ones modifying demand trends. Demand itself seems to have undergone a rather remarkable qualitative transformation.

There has been a general decline in the imports of fine and speciality wines, including wines with appellation of origin, sparkling wines and liqueur wines while the demand for ordinary wines, particularly those with a high alcoholic degree suitable for diluting and industrial purposes, has increased very substantially. This is clear in the imports of Germany, Belgium and even Switzerland, in the exports of Portugal, France and Greece (a higher proportion of wine in barrels) and, in those of Italy (a greater decrease in exports of special wines, vermouths and white wines than in those of ordinary red wines) and in the growth in the exports of the secondary exporters of the Denube Valley, Asia Minor and North Africa. In some cases, lower imports of fine and speciality wines can be attributed to the existence of stocks built up in years of low prices but it appears from the nature of the trade movement that a much wider and more stable development is taking place.

This development is the reflection of a change in consumption and of the organisation of the wine industry and trade in several of the large importing countries. It is well known that, while the British market is still essentially a market for quality wines of known provenance, in many other countries, especially Germany, including Austria, and Switzerland, the wine trade is tending towards the production of blended or diluted wines, absorbing the local production, supplemented by foreign wines. Further, especially in Germany, the national industry of sparkling wines, vermouths, vinegar, and wine alcohol has expanded considerably. This has reduced imports of such products and increased those of ordinary wines which are now purchased as raw materials for their sugar, alcoholic and acid content and no longer for consumption in the ordinary sense.

This is an important development for, though it has the effect of stimulating demand quantitatively it decreases the value of imports and changes the direction of exports. Demand is tending more and more towards high degree wines for diluting and wines for distillation and tries to acquire them at lower prices. From the standpoint of the exporting countries, this transformation accentuates the character of exports as a means of disposing of surpluses. Thus, in addition to *quality* exports, there are *quantity* exports the main purpose of which is to sell abroad at very low prices, for industrial purposes, the surplus quantities which the internal market could absorb only with difficulty.

The trend of demand qualitatively, together with the level of real prices on import markets and the almost complete cessation of exports of ordinary red wine from Spain, accounts for the changes in exports. These include a decrease

Exports of wine by principal exporting countries.

Countries	1937-38	1936-37	1935-36	1934-35	1933-34	1932-33	1931-32	Average 1926-27/ 1930-31
Thousand Imperial gallons								
NORTHERN HEMISPHERE. — Season 1 October-30 September.								
Italy	1) 35,890	1) 38,870	28,270	20,100	24,220	20,020	17,730	24,770
including exports into France	(310)	(1,180)	(30)	(310)	(290)	(680)	(620)	(4,940)
France	2) 22,350	2) 18,850	16,850	15,610	17,690	13,970	16,500	27,400
Portugal	3) 18,020	4) 18,560	19,130	18,520	15,660	17,820	14,060	5) 20,920
including imports from Portugal into France 4)	(2,700)	(3,400)	(3,020)	(3,690)	(1,340)	(3,100)	(3,650)	5) (4,850)
Hungary	6) 9,680	6) 7,490	5,380	3,930	5,100	5,040	4,640	4,590
Spain	7) . . .	7) . . .	7) . . .	29,060	36,010	59,300	40,080	96,530
including imports from Spain into France 3)	(170)	(990)	(1,760)	(2,940)	(6,710)	(32,600)	(11,945)	(52,710)
Greece	8,560	12,690	6,240	8,080	10,950	17,310	7,550	23,950
including exports into France	(850)	(4,170)	(640)	(640)	(4,530)	(11,395)	(3,120)	(9,560)
Algeria, Tunisia, Fr. Mo- rocco 8)	9,000	5,720	7,940	3,830	2,200	1,870	1,780	2,810
Algerian and Tunisian im- ports into France . .	(322,040)	(252,050)	(270,370)	(272,160)	(264,170)	(374,620)	(279,410)	(218,580)
Germany	1,030	1,230	990	1,190	1,170	920	1,030	960
Yugoslavia	6) 430	6) 550	6) 380	6) 380	6) 460	6) 840	6) 3,740	6) 1,900
U. S. S. R.	60	30	9) 40	9) 60	9) 200	9) 1,250	9) 1,330	980
Total northern hemisphere 8)	10) 114,500	10) 125,000	10) 113,000	100,760	113,660	138,340	108,440	202,520
Including imports from foreign countries into France	(4,030)	(10,470)	(5,450)	(6,840)	(15,070)	(48,660)	(19,970)	(68,930)
SOUTHERN HEMISPHERE. — Season 1 July-30 June.								
Australia	3,900	4,080	3,710	3,390	3,110	3,090	3,480	2,590
Chile	2,760	2,400	950	1,410	1,520	1,410	1,210	1,050
Union of South Africa . .	1,720	1,700	1,410	1,390	1,300	1,060	790	660
Total southern hemisphere.	8,380	8,180	6,070	6,190	5,930	5,560	5,480	4,300
GENERAL TOTAL 8) 11).	10) 122,500	10) 133,000	10) 119,000	106,950	119,590	142,900	112,970	206,800
Total product. of the 15 exporting countries in- dicated, excl. U. S. S. R.	3,540,000	2,820,000	4,132,680	4,046,230	3,352,780	3,502,670	3,640,370	3,227,350
Franco-Algerian production	(1,534,030)	(1,214,530)	(2,089,240)	(2,203,870)	(1,506,770)	(1,513,950)	(1,653,950)	(1,413,750)
Proportion of this total pro- duction exported . . .	12) 3.5 %	12) 4.5 %	2.8 %	2.7 %	3.2 %	4.1 %	3.1 %	6.3 %
Idem, excluding France and Algeria 13)	12) (5 %)	12) (6.5 %)	(4.5 %)	(4.4 %)	(4.9 %)	(4.0 %)	(3.8 %)	(6.1 %)

1) Including exports to the Italian colonies: 10,600,000 gal. in 1936-37, 10,010,000 gals. in 1937-38 — 2) In-
cluding, exports to the French colonies: 5,950,000 gals. in 1936-37, 5,650,000 in 1937-38. — 3) Including exports
to the Portuguese colonies: 3,930,000 gals. in 1936-37, 4,450,000 in 1937-38. — 4) The French figures for imports
from these countries are taken in the absence of indications of destinations in the monthly statistics for certain
years and, in the case of Spain, in order to account more exactly for exports to Switzerland across France;
total Spanish exports to France and Switzerland are practically equal — at most 760,000 gallons — to the
total French and Swiss imports of Spanish wines; exports from Portugal to France and imports of Portuguese
wines into France practically coincide. — 5) From 1927 to 1929, exports by calendar year. — 6) July 1-June 30,
failing monthly or quarterly statistics. — 7) Exports 1 October 1935 - 30 April 1936: 16,920,000 gallons. Imports
of Spanish wines into the six principal countries importing Spanish wines (about 80 % of the total export): in
the five months ending 30 Sept. 1936 8,760,000, in the twelve months ending 30 Sept. 1937 16,850,000 gal., in the
twelve months ending 30 Sept. 1938 7,260,000 gals. Approximate estimate for the calculation of the totals:
27,500,000 gal. in 1935-36. 21,000,000 in 1936-37, 9,500,000 in 1936-37. — 8) Excluding exports of Algeria and
Tunisia to France (almost entirely free of duty and about 4,400,000 gallons at half duty). — 9) Calendar year. —
10) Approximate rounded figure, including Spanish exports calculated as indicated in note 7. — 11) Representing
nearly 99 % of total world exports. — 12) Figure rounded at 0.5 %. — 13) Total exports of countries other than
France and Algeria, less those destined for France, and related to the total production of these countries.

in exports from Italy and Portugal, an increase in exports from France, Hungary, Greece, North Africa, Romania, Yugoslavia, Bulgaria and even Turkey, Palestine, Chile and the Union of South Africa.

Prices. — Price movements show even more clearly than trade trends the direct and indirect results of market regulation and protection.

In most of the countries of the Northern Hemisphere, including some which held supplies in excess of their requirements, prices showed a marked rising tendency at the beginning of the year. After a slight fall in several countries, prices again rose as a result of the late spring frosts. At the end of the year, prospects of large crops caused a weakening which in some countries, especially Romania, was serious enough to bring prices down nearly to the level at which they began the year. This was the trend in most of the countries of the Northern Hemisphere. In some countries, however, particularly Portugal, there was an almost continuous fall (averaging 40 per cent. in the country as a whole between October 1937 and September 1938; in the Porto and Aveiro districts the fall, compared with October 1936, was respectively 55 and 53 per cent for white wines and 60 per cent. for red wines). Prices also fell steadily in many of the countries of the Southern Hemisphere, particularly in Argentina (26 per cent. between May 1937 and September 1938 at Mendoza) and in Chile (18 per cent. for *Burdeos* wines and 25 per cent. for Semillón wines between January 1937 and September 1938 at San Xavier).

If, instead of the curve of monthly prices, the average price of the year is considered, it will be noted that it was above that of the previous year in nearly all countries and that there was a general improvement in the trade situation. The reverse was true of Portugal (28 per cent. for the country as a whole; 46 per cent. for white wines and 51 per cent. for red wines in the Porto district), the United States, Chile (about 15 per cent.) Czechoslovakia and probably Greece and Australia. The extent of the rise in other countries varied. In France, Algeria, Tunisia, Argentina, French Morocco and Romania it was slight (7 to 15 per cent.) and almost corresponded, at least for ordinary wines, to the rise in the general level of domestic prices. In the first four of these countries prices had risen sharply in 1936-37. Moreover, the rise was greater in the case of special wines owing to their excellent quality. On the whole the increase was greatest in Yugoslavia, Germany and Switzerland. It was relatively large in Italy (50 to 100 per cent.), Hungary (about 75 per cent.) and in Spain.

General Statistical and Economic Review of the Year.

The foregoing considerations show that the results of the year, considered from the statistical standpoint of disposal of supplies, were different from the results from the point of view of gross economic returns.

Disappearance of supplies, on the whole, was insufficient, having regard to their initial volume. Total marketings were undoubtedly larger than those of 1936-37 but below the previous average. They do not appear to have reach-

ed 4,000 million Imperial gallons (4,755 American gallons) whereas supplies, excluding normal carryover, were approximately 4,200 (5,020) million gallons. Stocks at the end of 1937-38 were 66 to 88 (79 to 106) million gallons larger, the total exceeding 220 (264) million gallons.

Consumption remained at low levels because supplies in the major producing and consuming countries—France, Algeria, Tunisia, Italy and Spain—were low and because the invisible consumption in the homes of producers was limited in these countries. On the other hand, Yugoslavia and Germany, both “deficit” countries at the beginning of the year, appear to have preserved statistical equilibrium on their markets. What is more significant is that the surplus supplies seem to have been absorbed in Hungary and in the secondary viticultural countries, including Switzerland, French Morocco, Turkey and the Union of South Africa. These are among the satisfactory aspects of the year. In a fair number of countries, including the major producing and consuming countries, the year left no surplus stocks of old wines over and above the normal carryover. In some cases, the carryover was hardly assured.

Nevertheless, demand was insufficient in nearly all countries which held supplies above the normal. It expanded in some cases but to a very slight extent compared with the increase in supplies. More frequently, demand fell off; this occurred also in Greece where supplies were about average. Thus, in Portugal, Romania, Greece, Czechoslovakia, the United States, Argentina, Brazil, Chile and Australia, the year ended with increased surpluses in some cases large. Supplies in bond in Great Britain also increased and reached a very high figure. The surplus supplies held at the end of 1937-38 in this group of producing and non-producing countries represented about one third of their annual consumption in the last two years.

The general development of the situation during recent years seems to indicate that overproduction still exists in a fairly large number of countries, including Portugal, Romania, the United States, Argentina, Brazil, Chile, French Morocco and Australia, and that in certain other countries (Greece, Bulgaria, Yugoslavia, Switzerland and Tunisia) the equilibrium between supply and demand is still unstable and subject to a serious danger of a large crop or of a weakening in demand either on the domestic or on the foreign markets. The equilibrium seems to be more stable in some of the important viticultural countries, including France, Algeria and Italy as well as Hungary, Germany, Austria and the Union of South Africa.

Though difficult to determine, the economic situation of the wine industry, seems to have been more affected by the policy of organization, protection and support. This is normal, for it was the principal object of the measures taken.

Not even an approximate estimate of the gross returns of the wine industry can be made, but an attempt can be made to calculate the relative magnitude of these returns in 1937-38, taking account of the commercial consumption (the consumption of home-produced wine on the domestic markets, exports, and the utilisation of wine and its by-products by derivative industries), the average price obtained during the year for the principal qualities and markets, the variations in the price levels of agricultural products and in the level of wholesale prices in general.

There is no absolute correspondence between the economic returns on the one hand and the statistical situation of disappearance on the other. Broadly speaking, it is true that gross returns seem to have increased or to have continued high in countries where the statistical situation was satisfactory or better. In other countries it decreased, but there were two exceptions namely, Romania and Argentina, where the average producers' prices were higher for the year as a whole. The two factors, variation of actual prices and variation in commercial consumption rarely work in the same direction. This seems to have occurred only in Hungary and Switzerland with a resultant appreciable increase in actual gross returns and in Portugal, Argentina and perhaps Greece with the opposite result. In most cases there was a partial compensation leaving a varying margin of profit or loss.

In France, if allowance is made for all factors, actual gross returns seem to have increased, owing to greater consumption of wine of recognised origins and of special wines and to the very large increase in prices. Returns were relatively high in Italy where the relatively considerable increase in producers' prices more than offset the small decrease in domestic consumption and the larger decrease in exports, with the result that gross returns increased from 30 to 40 per cent. Gross returns appeared to have increased also in Spain, Bulgaria and Germany including Austria, owing to the increase in prices and despite the decrease in the quantity of national wines sold in most if not all of these countries. In Algeria actual gross returns were very high and certainly larger than in 1936-37 owing to the increase in total commercial consumption. The same is true of French Morocco. In both these countries, after allowing for prices paid for compulsory distillation and exports and for loans to producers, the rise in the actual average price per hectolitre of the whole commercial consumption was little or nothing compared with 1936-37. On the other hand, in the United States, Czecho-Slovakia, Australia and Chile, the fall in producers' prices was partially or completely offset by the increase in commercial consumption.

Gross returns showed wide variations in Italy, Hungary, Yugoslavia, Romania, Bulgaria and Algeria, in all of which there was a substantial increase. In Portugal and Argentina there was a rather considerable decrease. Returns were at about the level of 1936-37 in France, Algeria, Tunisia, Greece, Germany, Czecho-Slovakia and the United States. On the whole, the year 1937-38 was better from the point of view of returns than from the statistical point of view of disappearance of supplies.

II. — THE GENERAL SITUATION OF PRODUCTION AND MARKETS AT THE BEGINNING OF 1938-39.

Statistical Position.

Production in the Southern Hemisphere in 1938 was 375 to 400 million Imperial gallons (449 to 476 million American gallons). The production obtained in the autumn in the Northern Hemisphere seems to have been between

World Wine Production in 1938.

COUNTRIES	1938	1937	Average	Average	% 1938		
	—	—	1932/1936	1927/1931	—		
	1938-39	1937-38	1932-33/ 1936-37	1927-28/ 1931-32	1938-39		
	ooo Imperial gallons				1937	1932-1936	1927-1931
					1937-38 = 100	1932-33/ 1936-37 = 100	1927-28/ 1931-32 = 100
Germany (1)	† 52,202	† 55,478	† 68,346	† 49,068	94.1	76.4	106.4
*Austria (land)	...	...	18,764	23,223	...	...	...
Bulgaria	2) 44,000	2) 33,000	30,916	26,430	133	142	166
*Spain	...	...	3)† 438,342	† 495,867	...	...	...
France (4)	1,273,834	1,130,133	1,253,882	1,187,818	112.7	101.6	107.2
Greece	† 90,193	† 74,100	† 79,738	† 54,422	121.7	113.1	165.7
Hungary	† 61,593	† 98,395	† 72,939	† 67,401	62.5	84.5	91
Italy	5) 910,697	747,941	834,240	863,125	...	...	...
Luxemburg	† 1,804	† 1,271	† 1,653	† 1,361	142.0	109.1	134.4
Malta	1,188	456	676	870	260.4	175.6	135.0
*Portugal	2) 240,000	177,057	157,451	147,633	137	154	164
Romania	2) 220,000	234,560	181,251	160,176	94	121	138
*Switzerland	...	10,318	13,477	12,446	...	...	...
*Czecho-Slovakia	...	11,993	9,792	6,963	...	...	...
*Yugoslavia	...	63,862	89,704	81,800	...	...	...
Total Europe	6) 2,840,000	2,543,000	2,673,000	2,550,000	111.5	106	111
Canada	...	...	2,530	...	...	...	...
United States	2)† 90,000	212,690	103,980	3) 54,270	43	77	162
Cyprus	4,995	2,046	3,008	4,214	244.2	166.1	118.3
*It. Aegean Islands	...	...	352	301	...	...	...
*Palestine	...	550	528	587	...	...	...
*Syria and Lebanon	...	836	676	400	...	...	...
Algeria	472,723	339,289	385,069	282,178	139.3	122.8	167.5
*Libya	...	699	476	119	...	...	...
French Morocco	17,114	12,811	9,657	4,290	133.6	177.2	398.9
Tunisia	8) 44,723	31,565	34,941	19,145	141.7	128.1	234.7
Total North Africa	534,580	383,665	429,667	305,513	139.3	124.4	175.0
TOTAL NORTHERN HEMISPHERE	3,470,000	3,141,000	3,210,000	2,910,000	110.5	108	119
Argentina	...	203,733	147,004	124,790	...	...	...
Brazil	...	...	16,396	15,895	...	...	...
Chile	...	2) 90,000	69,300	63,685	...	...	...
Peru	...	...	2,220	1,980	...	...	...
Uruguay	...	2) 16,500	11,875	9,571	...	...	...
Union of South Africa	...	2) 31,000	25,800	3) 20,836	...	...	...
Australia	...	20,848	16,915	15,848	...	...	...
TOTAL SOUTHERN HEMISPHERE	...	380,000	289,510	352,610	...	...	...
APPROXIMATE WORLD TOTAL (9)	{ 4,300,000 to 4,400,000 }	4,010,000	4,135,000	3,840,000	{ 107 to 109 }	103.5 to 106.5	111.5 to 114.5

* Countries excluded from the totals for the Northern Hemisphere.

† Must coefficient used for the totals: Germany 93 %, Greece 101 % (weight into volume), Hungary and Luxemburg 94 %.

(1) Excluding the land of Austria. — (2) Approximate estimate. — (3) Incomplete average; Spain 1932/1935, United States 1931, Union of South Africa 1929-30/1931-32. — (4) Crop declarations for tax purposes. Incomplete figures, the total production being about 66,000,000 Imp. gallons larger. — (5) Not comparable with previous figures, owing to changes in statistical methods. — (6) Adjusted total allowing for the statistical deviation in the data of Italy. — (7) Calculated on the basis of the Prorate Program for the wine industry. — (8) Including musts "mutés" by means of alcohol. — (9) Including countries which are not included in the totals for the Northern Hemisphere.

3,960 and 4,070 million Imperial gallons 4,755-4,667 million American gallons), making a total of 4,400 (5,300) million gallons in round figures excluding the production of the U. S. S. R. Allowing for the stocks existing at the end of the previous year, available supplies, excluding normal carryover, were at least 4,620 (5,550) million gallons and perhaps 4,730 (5,680) million gallons. Taking the average figure of total disappearance during the last six years (about 3,960 million Imperial gallons or 4,755 million American gallons) the supplies thus estimated would appear to leave a surplus of 660 to 770 million Imperial gallons (793 to 935 million American gallons). On the whole, therefore, overproduction is considerable. The surplus, though it is not as large as that of 1935-36 (1,430 million Imperial gallons or 1,717 million American gallons), is still of very large dimensions.

The size of the surplus and the proportion it bears to the normal disappearance are indicated below, the figures being rough estimates except in the case of France, Argentina, Australia, Chile and Uruguay.

Surpluses at the beginning of 1938-39.

Major exporting countries:

France-Algeria: 180 (216) million gallons, or 11 per cent. of the normal disappearance.

Italy: nil.

Spain (not known)

Portugal: 90 to 110 (108 to 132) million gallons, or 60 to 70 per cent.

Total: 290 (348) million gallons, or 8.5 per cent. of the normal disappearance.

Medium producing and exporting countries:

Greece: about 20 (24) million gallons, or 30 per cent. of the normal disappearance.

Hungary: nil.

Tunisia: about 10 (12) million gallons, or 30 per cent of the normal disappearance.

French Morocco: about 7 (8) million gallons, or 50 per cent. of the normal disappearance.

Chile: about 4 (5) million gallons, or 30 per cent. of the normal disappearance.

Union of South Africa about 7 (8) million gallons, or 15 per cent. of the normal disappearance.

Australia: about 15 (18) million gallons, or 65 per cent. of the normal disappearance.

Total: about 63 (75) million gallons, or 25 per cent. of the normal disappearance.

Medium producing and minor exporting countries:

Romania: 90 to 110 (108 to 132) million gallons, or 50 to 60 per cent. of the normal disappearance.

Yugoslavia: about 10 (12) million gallons, or 10 to 15 per cent. of the normal disappearance.

Bulgaria: about 10 (12) million gallons, 30 to 40 per cent. of the normal disappearance.

United States: 90 to 110 (108 to 132) million gallons, or 60 to 85 per cent. of the normal disappearance.

Argentina: 86 (103) million gallons, or 55 per cent. of the normal disappearance.

Brazil: 33 (40) million gallons, or 50 per cent. of the normal disappearance.

Uruguay: 2 (3) million gallons, or 20 per cent. of the normal disappearance.

Total 321 to 361 (386 to 434) million gallons, or 60 per cent. of the normal disappearance.

Importing countries: Excess of supplies or stocks compared with previous average:

Germany (including Austria), Switzerland, Czecho-Slovakia: little or none.

Great Britain, Belgium and other non-producing countries: about 10 (12) million gallons, or about 30 per cent. of consumption in 1936-37 and 1937-38.

The problem at the beginning of the preceding year, namely, to assure statistical equilibrium by increasing total disappearance and to raise producers' prices to a satisfactory level, or to keep them at such a level, thus appeared to be much more acute and much more general. The year 1937-38 showed that this double objective could be reached only by stringent regulation of production and trade and by direct Governmental intervention in markets. In the present circumstances it is impossible to expect sufficient development in consumption and industrial utilization even with an appreciable reduction in producers' prices; and, in any case, this solution would reduce the gross returns of growers which would be contrary to the viticultural policy of all countries. Since the viticultural policy has made this its principal objective, that is, to support or increase producers' prices, there is no prospect of increasing "paid" commercial consumption. On the contrary, this consumption seems likely to decrease generally as the result of the rise in prices in 1937-38 with certain exceptions already noted, the effect of which may be offset by other factors of depression on home markets.

The demand for industrial purposes apart from the direct interventions of Governments is also likely to be smaller and barely equal to what it was in 1937-38, partly owing to the existence of large stocks of alcohol and partly to the rise in the prices of this commodity. Finally, the demand of the importing markets does not seem likely to increase substantially. Though this demand may increase in certain importing viticultural countries, particularly Germany, the rise in producers' prices and the large stocks held in several countries are likely to bring about some weakening. As regards producers' prices, it

must be remembered that the effect of the depreciation of certain countries, at first very strong, tends to weaken and even to disappear. The only outlet capable of expansion is consumption in the homes of growers themselves. Consumption of this kind yields nothing and is of no economic interest and any expansion would apparently be quite insufficient to absorb an appreciable fraction of the surplus. At most it might absorb 110 to 130 million Imperial gallons (130 to 160 million American gallons).

In view of such a situation in the majority of countries, it was natural that the solution of the wine problem should be sought still more than in 1937-38 in the restriction of production, the utilization of the surplus by compulsory distillation, the elimination of some quantities from the market and the carryover of part of the surplus on the one hand and by the support of prices on the other, all measures to be accompanied by market regulations and methods of assisting exports and internal consumption.

The application and extension of Industry and Trade Regulations in 1938-39.

In several countries the regulations already in force were continued, but at the end of 1937-38 these measures were revised, reinforced and made more elastic in France, Algeria and French Morocco. In Italy the law of July 1937 had not yet been applied in its entirety. In most cases new regulations were applied.

In *France* and *Algeria* the viticultural statute, according to the official expectations, was to provide, on the one hand, for the removal of 143 million Imperial gallons (172 million American gallons) by means of compulsory distillation, and on the other hand, for confining in producers' cellars of 33 million Imperial gallons (40 million American gallons) which will thus be provisionally removed from the market and probably carried over to the next year. The total corresponds to the surplus available supplies according to the official estimate. The quantity of alcohol taken over by the State for defence requirements has also been increased, which makes an additional outlet for the large expected production of alcohol. Moreover, the graduation of sales is to assure a minimum price of 16 to 17 Frs. per degree-hectolitre for ordinary wines on the markets of the Midi.

Italy appears to have no surplus supplies. The change in the statistics of production following the intervention of the system of compulsory production returns, makes it impossible to determine the size of production in 1938. Though this production was at least 10 per cent. larger than that of 1937, it seems hardly larger than the average of the years 1932-36. Stocks of old wine at the beginning of the season appeared to be small. However, in pursuance of the law of July 1937, it was decided that distillation should supply 5,720,000 Imperial gallons (6,870,000 American gals.) of wine alcohol. For this purpose 10 per cent. of the commercial production of the year was confined in producers' cellars at the beginning of the year, which would give supplies of about 70 (80) million gallons, but it was estimated that it was sufficient to distil half

of this quantity, the remainder of the wine alcohol to be provided by the distillation of poor quality wine (lees, second pressings and grape marc). At the same time, the production of grape pip oil was to reach 2,200,000 (2,600,000) gallons during the year. In view of the general market situation, the larger commercial supplies and the declining tendency of commercial consumption, it seemed difficult to maintain the high prices reached during the previous year. Attempts to organise the industry and trade by means of *consorzi*, *monopoli* and the corporative control of the market were to be accentuated for this purpose. Exports presented another serious problem. Organisations for study, propaganda and control were set up either by the *Federazione nazionale fascista dei commercianti in vini* (Expert committee for exports of wine and similar products) or by the Ministry of Foreign Trade and Exchanges (Study committee for each country). Plans to fix minimum export prices were made.

In *Spain*, the main problem was exports and the conclusion of trade agreements between Burgos and Spain's principal customers—Switzerland and Germany. At the beginning of the year it seemed that this problem was approaching a solution.

In *Portugal* where a record production of 2 million 'pipes' was expected, or about 240 (290) million gallons, a series of measures were taken to limit commercial production and to support the market through a corporative organization with larger and less immediate objectives. Production of Port wines was limited to 40,000 pipes, equivalent to 4,800,000 (5,800,000) gallons, a very small figure and lower than in any of the preceding years. The *Junta Nacional do Vinho*, set up in October 1937, was to withdraw 300,000 pipes, or 36,300,000 (43,600,000) gallons from the market, thus reducing the available production by 15 per cent. Steps were taken to expand exports and to maintain internal prices at a minimum of 50 escudos per hectolitre to producers.

In *Hungary*, where there was no surplus and where the prospects were good, no exceptional measure, such as the concentration of musts, was necessary. However, a minimum price was fixed, on agreement between the Government and the interested bodies, by the Consortium for the valorisation of wine products (420 fillers per degree-hectolitre for musts, 200 fillers for wines and 10 pengöes per quintal of wine grapes).

In the *United States* a plan followed the formation of a compulsory union of wine makers. This provides for the limitation of production by a quota system for grapes used for wine (120,000,000 centals or 600,000 short tons, equivalent to 40 per cent. of the 1937 production) and by the absorption of the surplus, partly for distillation by industrial wineries. The programme also provides for energetic propaganda, financed by the banks, to encourage wine consumption.

Argentina, where surplus supplies on August 1 were rather large, adopted a number of serious measures. The opening of the commercial year 1938-39 was shifted to November 1. This had the effect of reducing the surplus statistically to 62 (74) millions gallons and was equivalent to a temporary elimination of the 1938 vintage ensuring the disposal of stocks of old wines.

Producers in the provinces of Mendoza and San Juan were required to deliver to the *Junta nacional de Vinos*, as a free loan, 15 per cent. of their production. This absorbed 29 (34) million gallons which will be eventually eliminated from the market. The Junta was authorised to purchase 22 (26) million gallons at a fixed maximum price. This quantity was to be removed from the market and disposed of in a manner to be determined by the size of future crops. The remainder of the statistical surplus of 62 (74) million gallons, or about 10 (12) million gallons will be held by producers.

Several other countries have taken steps to dispose of their surpluses in the form of fuel alcohol. They include French Morocco, where the production of alcohol from wine is to be raised to 3,300,000 (4,000,000) gallons against 1,200,000 (1,500,000) gallons in 1937-38; Australia, where the Federal Viticultural Council has been replaced by the Australian Wine Council which has wider powers and which is to prosecute the extension of the use of wine alcohol as fuel; Uruguay, where a large surplus is to be converted into alcohol.

In addition to these direct and clearly defined measures, mention must be made of the development and extension of the existing organisations and measures in Greece (creation of the Wine Institute), Romania and Yugoslavia.

Thus, the wine industry and trade seem to be even more closely regulated than in 1937-38. The production of wine alcohol may be expected to be at least twice as large as in 1937-38.

Allowing for the quantities eliminated in a more drastic manner, it may be reckoned that about 220 (260) million gallons, or a little less than a third of the surplus, will be thus disposed of. In some countries, part of the surplus will be provisionally blocked and withdrawn from the market. The latter represents a necessary but speculative anticipation of small or less abundant crops and has the effect of stabilising the market or supporting prices.

The Market Situation in the first months of the year.

It is not easy at present to ascertain the results of the measures enumerated. Commercial consumption is declining in France and, despite the greater demand for distillation, the disposal of wine is very irregular. The figure is high in Algeria and in the minor producing areas in the centre, the west and the east of the home country, but it is low in the south.

International trade seems to be stationary on the whole. Great Britain and Belgium, in particular, imported less in the first months of this year than in the corresponding months of 1937-38. There was a large increase in Germany and Switzerland however. In the exporting countries, the most striking development is an appreciable recovery in German imports from Spain.

There was a rather general fall in producers' prices at the beginning of the year in the countries with surplus supplies. In Italy this decline was 10 to 20 per cent. In France, however, prices of ordinary wines on markets in the midi rose in February to the level reached in September 1937 and this rise

extended to other places, for Bordeaux wines in particular. Prices in Algeria reached a very high level. They are firm with a rising tendency in Hungary.

These indications however, are fragmentary and can give only a very incomplete idea of the general course of the commercial year.

P. DE VIGUERIE.

Current information on Vines.

France: It is not possible until growth begins to estimate the extent of the damage done by the winter frosts to vines. The damage, moreover, seems to be extremely variable from one district to another and according to the exposure of vines and stocks. In the first few days of March, growth began in the south but was checked by March 7 by a return of cold north winds. Seasonal work, particularly pruning, progressed very well in February. At the end of the month, pruning had been completed normally in the south.

Greece: Vines benefited from rain towards the end of February and at the beginning of March.

Argentina: In February the maturation of wine varieties of grapes continued in good conditions. Crop prospects in the country as a whole were good for these varieties. Picking of table grapes was in progress in all areas, and yields were good except in San Juan Province where vineyards were affected by drought, high temperatures and winds.

Cyprus: The production of grapes in 1938 is estimated at 1,408,200 centals (including 772,200 centals of grapes for wine) against 765,000 in 1937 and an average of 1,184,500 on the average 1932 to 1936; percentages, 184.1 and 118.9.

Algeria: Pruning and replanting of stocks were almost finished at the end of February. In some vineyards in Alger the mild weather caused premature sprouting of buds, which may be damaged by frost.

Tunisia: Pruning and planting of American vines was carried out at the end of February in the Bizerta and Tunis districts. Surface hoeing was in progress. Stripping was just beginning on early stocks.

Current information on Olives.

Argentina: Olive crop prospects were good in February in the main producing areas.

Algeria: Trees were being pruned at the end of February. Improved prunings are expected to follow the instruction given in some districts.

Tunisia: Pruning, planting and other work were in progress at the end of February.

World Production of Olive-oil.

COUNTRIES	1938-39	1937-38	Average 1932-33 to 1936-37	% 1938-39	
				1937-38 = 100	Average 1932-33 to 1936-37 = 100
	centals	centals	centals	%	%
Albania	* 33,100	* 37,500	37,500	88	88
Spain	* 7,054,800	* 8,377,600	7,944,800	84	89
France	a) 209,400	a) 176,400	166,700	119	126
Greece	* 2,068,600	4,133,000	2,306,100	50	90
Italy	* 3,747,900	6,109,500	4,263,500	61	88
Portugal	* 771,600	2,144,200	938,700	36	82
Yugoslavia	* 77,200	158,700	82,500	49	94
<i>Total Europe</i>	<i>13,962,600</i>	<i>21,136,900</i>	<i>15,739,800</i>	<i>66</i>	<i>89</i>
Argentina	* 1,300	* 1,300	1,100	100	120
United States	* 19,800	17,600	17,600	112	112
<i>Total America</i>	<i>21,100</i>	<i>18,900</i>	<i>18,700</i>	<i>112</i>	<i>113</i>
Cyprus	28,000	58,500	20,400	48	137
Italian Aegean Islands	* 22,000	24,300	20,300	91	109
Palestine	225,500	208,300	66,100	108	341
Syria and Lebanon	* 220,500	425,900	242,200	52	91
Turkey	881,900	1,364,300	622,400	65	142
<i>Total Asia</i>	<i>1,377,900</i>	<i>2,081,300</i>	<i>971,400</i>	<i>66</i>	<i>142</i>
Algeria	131,300	353,100	248,400	37	53
Libya	* 55,100	88,200	54,200	62	102
French Morocco	* 176,400	* 198,400	204,100	89	86
Tunisia	661,400	1,102,300	1,080,300	60	61
<i>Total Africa</i>	<i>1,024,200</i>	<i>1,742,000</i>	<i>1,587,000</i>	<i>59</i>	<i>65</i>
World production of olive-oil	16,385,800	24,979,100	18,316,900	66	89

* Rough unofficial estimate. — (a) Data calculated on the basis of olive production.

Current information on Flax.

France: Despite excessive moisture, preparation of the land was done in good conditions. It seems that sowings will cover an appreciably larger area than that of last year and the average.

Italy: The spring sowing of flax for fibre began in the second half of February.

United States: The Crop Reporting Board estimates on the basis of farmers' reports on their planting intentions that the area to be sown to linseed this year will be about 2,032,000 acres. This is considerably larger than the 1,096,000 acres actually sown in 1938 but only moderately above the average planted area of the five years 1933 to 1937 (1,937,000 acres).

Area and Production of Flax.

COUNTRIES	† AREA					† PRODUCTION							
	1938	1937	Aver.	% 1938	Aver- age = 100	1938	1937	Aver.	1938	1937	Aver.	% 1938	Aver. 1937/ 1938 = 100
	and	and	1932	and		and	and	1932	and	and	1932	and	
	1938-39	1937-38	1932-33	to 1936-37		1938-1939	1937-1938	1932-33 to 1936-37	1938-39	1937-38	1932-33 to 1936-37	1937 and 1938/1938	
	ooo acres					ooo centals			ooo pounds				
Fibre.													
Germany . . .	111 ²⁾	151 ²⁾	50	—	—	643 ²⁾	766 ²⁾	354 ¹⁾	64,335 ²⁾	76,635 ²⁾	35,412 ²⁾	—	—
Belgium . . .	77	69	40	110.9	191.0	781	524	280	78,064	52,430	28,049	148.9	278.3
Bulgaria . . .	10	10	3	98.8	289.6	9	14	4	939	1,061	440	88.5	213.2
Estonia . . .	58	77	55	74.9	106.6	168	226	155	16,798	22,643	15,544	74.2	108.1
*Finland (4) . .	8	8	11	99.0	74.0	...	23	36	...	2,278	3,552	...	...
France . . .	101	69	59	146.3	170.0	518	418	332	51,767	41,749	33,250	124.0	155.7
Hungary . . .	9	9 ²⁾	8	94.2	112.9	37	37 ²⁾	29	3,715	3,692 ²⁾	2,886	100.6	128.7
Ireland . . .	4	4	3	92.3	144.4	15	19	12	1,460	1,859	1,203	78.6	121.4
Italy . . .	17	15	10	112.1	170.2	80	63	48	7,974	6,281	4,813	127.0	165.7
Latvia . . .	162	171	126	94.5	128.6	473	510	359	47,316	50,971	35,878	92.8	131.9
Lithuania (4) . .	192	218	160	88.2	120.3	568	691	511	56,844	69,082	51,100	82.3	111.2
Netherlands . . .	50	43	18	115.9	283.5	376	320	139	37,602	32,047	13,941	117.3	269.7
Poland . . .	365	360	273	101.5	134.0	872	840	706	87,237	84,014	70,596	103.8	123.6
*Romania . . .	37	53	62	70.0	60.1	...	192	180	...	19,180	17,996	...	...
Utd. Kingd.: . .	21	19	17	107.5	121.2	...	94	85	...	9,379	8,476	...	...
* N. Ireland . .	40	48	26	82.7	150.3	...	244	127	...	24,361	12,674	...	...
*Czecho-Slovak . .	...	34	30	...	...	...	244	234	...	24,402	23,426	...	...
*Yugoslavia . . .	1,156	1,196	805	96.5	144.1	4,540	4,428	2,929	454,051	442,464	293,112	102.7	155.0
Total Europe . .	5,708	6,311	6,379	90.4	89.5	16,648	17,038	14,906	1,664,851	1,703,524	1,448,052	97.8	111.7
*U. S. S. R. (6) .	7 ²⁾ 4,543	7 ²⁾ 5,109	5,570	88.9	81.6	12,037	12,566	11,949	1203,728	1,256,639	1,194,940	95.8	100.7
Egypt . . .	9	6	4	143.4	209.9	71	44	28	7,072	4,421	2,849	160.0	248.3
TOTALS . . .	5,708	6,311	6,379	90.4	89.5	16,648	17,038	14,906	1,664,851	1,703,524	1,448,052	97.8	111.7
Linseed.													
ooo bushels of 56 lb.													
Germany . . .	111 ²⁾	151 ²⁾	50	—	—	502 ²⁾	923 ²⁾	334 ¹⁾	897 ²⁾	1,648 ²⁾	597	—	—
Belgium . . .	77	69	40	110.9	191.0	355	302	225	634	539	403	117.5	157.4
Bulgaria . . .	10	10	3	98.8	289.6	25	36	16	45	64	29	70.1	156.8
Estonia . . .	58	77	55	74.9	106.0	196	222	168	350	396	299	88.5	117.0
*France . . .	101	69	59	146.3	170.0	...	...	239	...	...	427	...	...
Hungary . . .	19	16 ²⁾	23	119.0	84.4	143	98 ²⁾	118	255	176 ²⁾	210	144.9	121.4
Italy . . .	27	20	12	134.2	230.7	147	113	59	263	201	106	130.6	247.5
Latvia . . .	162	171	126	94.5	128.6	450	493	333	803	880	594	91.2	135.2
Lithuania (4) . .	192	218	160	88.2	120.3	650	785	608	1,161	1,401	1,085	82.9	107.0
*Netherlands . . .	50	43	18	115.9	283.5	...	275	121	...	491	216	...	...
Poland . . .	365	360	273	101.5	134.0	1,508	1,660	1,255	2,692	2,964	2,241	90.8	120.1
*Romania . . .	37	53	62	70.0	60.1	...	161	240	...	287	429	...	...
*Czecho-Slovak . .	40	48	26	82.7	150.3	...	199	99	...	356	176	...	...
*Yugoslavia . . .	...	...	...	...	...	...	29	23	...	52	40	...	...
Total Europe . .	1,021	1,092	742	93.4	138.1	3,976	4,632	3,116	7,100	8,269	5,564	85.9	127.7
*U. S. S. R. (9) .	7 ²⁾ 5,605	7 ²⁾ 6,002	6,386	93.4	87.8	...	...	16,359	...	...	29,213	...	...
Canada . . .	221	241	343	91.7	64.5	778	434	865	1,389	775	1,545	179.3	89.9
United States . .	954	934	1,509	102.1	63.2	4,576	3,970	4,913	8,171	7,089	8,774	115.3	93.1
Total N. Am. . .	1,175	1,175	1,852	100.0	63.5	5,354	4,404	5,778	9,560	7,864	10,319	121.6	92.7
India . . .	3,839	3,677	3,356	104.4	114.4	10,237	9,408	9,005	18,280	16,800	16,080	108.8	113.7
Egypt . . .	9	6	4	143.4	209.9	62	45	33	110	81	58	136.1	190.0
Ital. East Afr.: .	...	...	...	...	...	...	...	...	...	...	...	...	...
*Eritrea . . .	...	11	6	...	...	...	41	26	...	73	46	...	...
Fr. Morocco . .	56	57	40	97.2	140.1	112	223	161	201	398	288	50.4	69.7
Total N. Afr. . .	65	63	44	103.8	150.0	174	268	194	311	479	346	64.8	89.8
Argentina . . .	1 ²⁾ 6,608	1 ²⁾ 7,023	1 ²⁾ 7,274	94.1	90.8	34,172	33,938	38,077	61,021	60,604	67,994	100.7	89.7
Uruguay . . .	455	332	333	137.1	136.8	2,816	2,088	1,544	5,028	3,728	2,758	134.9	182.3
TOTALS . . .	13,163	13,362	13,601	98.5	96.8	56,729	54,738	57,714	101,300	97,744	103,061	103.6	98.3

† The years indicated are those of the harvest, single years referring to the Northern Hemisphere, double years to the Southern. — * Not included in the total. — (1) Not including Austria. — (2) Including Austria. — (3) Average 1933 to 1936. — (4) Flax and hemp. — (5) Average 1934 to 1936. — (6) Dolgunetz variety. — (7) Area according to the plan. — (8) On September 1, the flax on 96 per cent. of the area provided for in the plan had been pulled. — (9) Dolgunetz and Kudriash varieties. — (10) Average 1932 to 1935. — (11) Including Tigrai. — (12) Area sown.

Current information on cotton.

United States: During the week ended March 2 preparations for planting in some Southern sections were becoming abnormally delayed although some cotton had been seeded in the extreme south of Texas. Persistent rains over extensive areas were retarding farm work. During the week ended March 15 cotton planting preparations in most of the South made considerably better progress. Planting preparations began in the southeastern part of the Belt and much ground was seeded in the extreme southern part of Texas.

Summary of the Cotton Reports
issued by the Government of the United States, during
the cotton season (August 1-July 31).

	Provisional estimates for dates indicated 1938-39	Final estimates		Percent. 1938-39	
		1937-38	Average 1932-33 to 1936-37	1937-38 = 100	Aver. = 100
Report referring to July 1:					
Area in cultivation (acres)	26,904,000	34,471,000	32,752,000	78.0	82.1
Report referring to August 1:					
Area left for harvest (acres) 1)	26,347,000	2) 34,001,000	2) 29,962,000	77.5	87.9
Crop condition (per cent. of normal)	78	81	69	—	—
Production 4)	11,988,000	18,945,000	11,745,000	63.3	102.1
Yield of lint per acre, in lb.	217.9	266.9	179.8	81.6	121.3
Cotton ginned to August 1 5)	157,865	142,983	95,516	110.4	165.3
Cotton ginned to August 16 5)	313,934	514,524	318,270	61.0	98.6
Report referring to September 1:					
Area left for harvest (acres) 6)	26,449,000	2) 34,001,000	2) 29,962,000	77.8	88.3
Crop condition (per cent. of normal)	65	75	59	—	—
Production 4)	11,825,000	18,945,000	11,745,000	62.4	100.7
Yield of lint per acre, in lb.	214.1	266.9	179.8	80.2	119.2
Cotton ginned to September 1 5)	1,335,893	1,874,320	1,234,694	71.3	108.2
Cotton ginned to September 16 5)	3,636,564	4,261,165	2,980,657	85.3	122.0
Report referring to October 1:					
Crop condition (per cent. of normal)	66	79	59	—	—
Production 4)	12,212,000	18,945,000	11,745,000	64.5	104.0
Yield of lint per acre, in lb.	221.1	266.9	179.8	82.8	123.0
Cotton ginned to October 1 5)	6,578,399	8,260,071	5,194,093	79.6	126.6
Cotton ginned to October 18 5)	8,930,810	11,066,210	7,564,193	80.7	118.1
Report referring to November 1:					
Production 4)	12,137,000	18,945,000	11,745,000	64.1	103.3
Yield of lint per acre, in lb.	219.7	266.9	179.8	82.3	122.2
Cotton ginned to November 1 5)	10,126,502	13,160,423	9,029,178	76.9	112.2
Cotton ginned to November 14 5)	10,749,913	14,947,111	9,924,039	71.9	108.3
Report referring to December 1:					
Area in cultivation on July 1 (acres)	26,144,000	34,471,000	32,752,000	75.8	79.8
Area left for harvest (acres) 7)	25,346,000	2) 34,001,000	2) 29,962,000	74.5	84.6
Production 4)	12,008,000	18,945,000	11,745,000	63.4	102.2
Yield of lint per acre, in lb.	226.8	266.9	179.8	85.0	126.2
Average gross weight of running bale, lb. 8)	514.2	519.0	509.9	99.1	100.8
Cotton ginned to December 1 5)	11,232,737	16,175,505	10,722,272	69.4	104.8
Cotton ginned to December 13 5)	11,413,837	16,803,013	11,012,934	67.9	103.6
Cotton ginned to January 16 5)	11,553,369	17,644,208	11,310,583	65.5	102.2

	Provisional estimates for dates indicated 1938-39	Final estimates		Percent. 1938-39	
		1937-38	Average 1932-33 to 1936-37	1937-38 Aver. = 100	1938-39 = 100
<i>Report of March 20:</i>					
Total ginnings throughout the season 5)	11,620,601	18,252,075	11,481,482	63.7	101.2
Equivalent cotton ginned 4)	11,941,702	18,945,028	11,744,520	63.0	101.7
Average gross weight of running bale, lb. 8)	513.8	519.0	(3) 509.9	99.0	100.8
Total number of running bales, excl. linters	11,699,590	18,415,446	11,692,156	63.5	100.1
Including: Sea-island	4,273	4,030	223	106.0	1916.1
American-Egyptian	20,501	10,991	13,454	186.5	152.4
Upland: Round bales	157,979	326,742	421,349	48.3	37.5
Upland: Square bales.	11,516,837	18,073,683	11,257,131	63.7	102.3
Linters: running bales . . . . .	...	1,470,528	870,020	...	...
Linters: equiv. 500-pound bales, net weight	...	1,754,516	1,039,882	...	...
Number of ginneries: total . . . . .	...	14,283	14,833	...	...
Number of ginneries operated	12,279	12,838	13,043	95.6	94.1
Average number of bales ginned per active establishment 5)	946	1,422	879	66.5	107.6

(1) Area in cultivation on July 1 less the ten-year (1928-37) average abandonment 2.1 per cent. — (2) Area actually harvested. — (3) Ten-year (1927-36) average. — (4) In bales of 478 lb. net weight and exclusive of linters. — (5) In running bales, counting round bales as half bales and exclusive of linters. — (6) Total abandonment after July 1: 1.7 per cent. — (7) Abandonment: 3.1 per cent. — (8) Counting round bales as half bales and exclusive of linters.

St. Vincent: Weather conditions in January were rather unfavourable for the cotton crop and peasants' fields in particular suffered. It was feared that any further rainy weather might cause serious losses from boll rotting and shedding, and expectations were for a crop much below that of 1937-38 which was obtained from a rather smaller acreage than that planted in 1938-39.

Egypt: Sowing of the cotton crop has made but little progress in Upper and Middle Egypt during February, notwithstanding early tillage, owing to the following causes:

(1) Variable weather conditions during certain days.

(2) Belated water supply of many canals in certain localities.

(3) Abstention of growers from early sowing for fear of what happened last season, namely, that they would be compelled to resow early areas.

Only 7 per cent. of the total area had been sown up to the end of the month, as against 13 per cent. last year, and 18 per cent. in 1937, during the corresponding period. Germination is so far satisfactory.

Cotton ginned up to the end of February, in bales of 478 lb. net weight, was as follows:

Varieties	1939	1938	1937	1936	1935	1934	1933
Giza 7	319,847	428,117	368,936	238,332	168,237	87,990	30,900
Sakellaris	—	77,183	97,704	163,182	166,519	208,982	210,442
Other varieties above:							
1 3/8" (1)	124,757	94,277	84,552	88,684	47,825	97,878	64,161
1 1/4"	38,911	27,806	28,459	39,164	36,759	69,396	64,125
1 1/8"	868,708	1,099,478	1,160,323	1,030,308	930,335	1,020,467	500,411
Total	1,352,223	1,726,861	1,739,974	1,559,670	1,349,675	1,484,713	870,039
Scario	26,599	29,963	38,004	34,032	28,583	29,757	20,139
Total production (including Scario) *	1,523,000	2,281,223	1,887,164	1,768,581	1,565,583	1,776,908	1,026,977

* Second estimate. — (1) Including Sakellaris.

Tanganyika: It was reported in January that conditions had been favourable for the Mwanza cotton crop, and prospects were good.

Uganda: During December in the Eastern Province and West Nile, Acholi and Lango districts of the Western Province weather conditions were hot and dry. These conditions were favourable for picking, but affected late plantings adversely. In Bu-

Area and Production of Cotton.

COUNTRIES	AREA					PRODUCTION OF GINNED COTTON							
	1938-39	1937-38	Average 1932-33 to 1936-37	% 1938-39		1938- 1939	1937- 1938	Average 1932-33 to 1936-37	1938- 1939	1937- 1938	Average 1932-33 to 1936-37	% 1938-39	
				1937- 1938	Average age							1937- 1938	Average age
			= 100	= 100	= 100			= 100					
ooo acres	ooo centals	ooo bales of 478 lb.	= 100	= 100									
Bulgaria	143	125	57	115.1	250.7	167	225	98	35	47	21	74.4	169.7
Greece	187	178	95	104.7	195.7	321	361	189	67	75	39	89.0	170.4
Italy	91	54	10	167.5	902.6	209	93	19	44	20	4	224.4	1080.4
*Romania	12	4	3	296.6	452.4	...	11	3	...	2	...	...	...
*Yugoslavia . . . . .	...	7	3	...	...	...	15	4	...	3	1	...	...
U. S. S. R.	5,108	5,163	5,017	98.9	101.8	18,409	18,078	10,948	3,851	3,782	2,290	101.8	168.2
United States (1)	25,346	34,001	29,962	74.5	84.6	57,081	90,557	56,139	11,942	18,945	11,745	63.0	101.7
*Br. West Indies . . . . .	...	22	14	...	...	...	25	15	...	5	3	...	...
*Mexico . . . . .	...	829	495	...	...	...	1,625	1,177	...	340	246	...	...
Brazil	6,178	6,672	3,762	92.6	164.2	9,560	10,077	6,122	2,000	2,108	1,281	94.9	156.1
Argentina	1,005	1,048	691	95.9	145.4	1,852	1,134	1,111	387	237	232	163.3	166.6
*Burma	549	560	454	98.1	120.9	...	600	382	...	126	80	...	...
Cyprus	9	12	9	73.1	95.7	9	17	9	2	4	2	54.1	100.7
Chosen	576	548	475	105.2	121.5	929	1,017	773	194	213	162	91.3	120.2
India (2)	23,483	25,324	23,912	92.7	98.2	19,524	22,728	21,216	4,085	4,755	4,438	85.9	92.0
*Iraq	79	65	26	121.5	301.0	...	81	13	...	17	3	...	...
Syria	92	86	51	106.4	178.2	...	123	76	40	26	16	155.9	251.9
Turkey . . . . .	...	792	485	...	...	1,722	1,427	787	360	299	165	120.7	218.9
*Belgian Congo . . . . .	...	890	655	...	...	...	761	503	...	159	105	...	...
Egypt	1,852	2,053	1,664	90.2	111.3	7,280	10,904	7,672	1,523	2,281	1,605	66.8	94.9
*Kenya	—	—	—	—	—	...	74	47	...	15	10	...	...
*Nyasaland	—	—	54	—	—	...	50	40	...	8	8	125.0	130.5
Uganda	1,493	1,759	1,240	84.9	120.4	1,300	1,668	1,190	272	349	249	77.9	109.2
Anglo-Eg. Sudan	458	443	379	103.4	120.5	1,150	1,261	919	241	264	192	91.3	125.1
*Tanganyika (3)	—	—	—	—	—	188	258	158	39	54	33	73.0	119.6
TOTALS	67,009	78,258	67,809	85.6	98.8	119,704	159,670	107,268	25,043	33,405	22,441	75.0	111.6

* Countries not included in the totals.

(1) See: *Summary of Government Cotton Reports*. — (2) Fourth report, referring to the entire cotton area of India. — (3) Exports.

ganda Province the abnormal rains benefited late plantings, but interfered somewhat with harvesting from the early sowings. On the whole, crop prospects seemed slightly less favourable than before. It was reported in January that the dry weather continued to have an adverse effect on the late plantings. It was not anticipated, however, that the total crop would fall far short of the original estimate, already published and appearing in the general table.

Current information on Hemp.

Italy: Hemp sowings were started in favourable conditions in the second half of February.

Area and Production of Hemp.

COUNTRIES	AREA					PRODUCTION				
	1938	1937	Average 1932 to 1936	% 1938		1938	1937	Average 1932 to 1936	% 1938	
				1937 = 100	Average = 100				1937 = 100	Average = 100
ooo acres					ooo pounds					

Fibre.											
Germany (1) . . .	31	19	5	168.0	620.1	25,953	15,313	2)	9,083	169.5	285.7
Bulgaria	23	20	14	113.7	164.1	8,404	10,142		5,814	82.9	144.5
France	9	9	7	98.3	126.5	11,162	9,776		7,040	114.2	158.6
Italy	225	214	156	104.9	143.6	239,487	239,196		144,722	100.1	165.5
Poland	83	85	81	97.4	101.7	28,307	25,397		24,352	111.5	116.2
Romania	126	126	118	100.2	107.0	...	59,525		56,670	...	...
Czecho-Slovakia .	18	18	19	101.1	96.9	...	10,694		12,709	...	...
Yugoslavia . . . .	...	139	95	...	...	...	110,048		77,705	...	...
U. S. S. R.	3) 1,413	3) 1,511	1,740	93.5	81.2	—	—	—	—	—	—
Syria & Lebanon .	...	16	6	...	...	...	10,507		3,482	...	...
Turkey . . . . .	...	31	28	...	...	10,033	4,561		6,255	220.0	160.4

Hempseed.											
Germany (1) . . .	31	19	5	168.0	620.1	17,417	11,089	2)	5,956	157.1	292.4
Bulgaria	23	20	14	113.7	164.1	5,196	5,589		4,297	93.0	120.9
France	9	9	7	98.3	126.5	...	...		1,894	...	...
Italy	—	—	—	—	—	6,221	6,054		5,455	102.8	114.0
Poland	83	85	81	97.4	101.7	43,299	41,350		38,168	104.7	113.4
Romania	126	126	118	100.2	107.0	...	51,588		44,033	...	...
Czecho-Slovakia .	18	18	19	101.1	96.9	...	7,477		8,374	...	...
Yugoslavia	—	—	—	—	—	...	9,901		3,858	...	...
Manchukuo . . . .	...	150	2)	152	...	70,420	79,755	2)	88,783	88.3	79.3
Turkey . . . . .	...	31	28	...	...	22,414	22,190		17,044	101.0	131.5

(1) Not including Austria. — (2) Average 1935 and 1936. — (3) Area forecast by the Plan.

Current information on Hops.*Area and Production of Hops.*

COUNTRIES	AREA					PRODUCTION								
	1938	1937	Average 1932 to 1936	% 1938		1938	1937	Average 1932 to 1936	% 1938					
				1937	Average				1937	Average				
											= 100	= 100	= 100	= 100
ooo acres					ooo pounds									
*Germany (1) . . .	21.0	22.8	23.6	92.2	89.1	...	22,656	16,309	...	...		
Belgium	1.8	2.1	2.0	87.0	93.9	2,105	2,663	2,329	79.0	90.4				
France	4.2	4.3	4.6	98.9	93.0	4,495	5,182	3,940	86.7	114.1				
*Hungary . . . . .	...	0.2	0.3	...	...	...	126	151	...	...		
*Poland	8.5	8.8	6.7	96.7	127.1	...	3,326	3,430	...	...		
*Romania	0.1	0.2	0.1	13.5	48.0	...	88	29	...	...		
United Kingdom: Engl. and Wales.	18.5	18.1	17.6	102.2	105.0	28,784	26,320	26,051	109.4	110.5				
*Czecho-Slovakia . .	28.7	28.5	27.7	100.6	103.8	...	26,819	17,886	...	...		
Yugoslavia	7.0	7.1	5.4	97.3	129.3	3,527	4,701	3,341	75.0	105.6				
—														
*Canada . . . . .	...	1.1	1.0	...	...	...	1,510	1,409	...	...		
United States . . .	31.5	34.3	31.8	91.8	99.1	35,261	43,913	36,247	80.3	97.3				
TOTALS . . .	63.0	65.9	61.4	95.1	102.4	74,172	82,779	71,908	89.6	103.2				

* Not including in the total. — (1) Not including Austria.

Current information on Tobacco.

Hungary: At the end of February the preparation of seed-beds for tobacco had begun.

Argentina: Except in the Mission Territory, the condition of the tobacco crop was generally poor in February owing to the drought of the earlier months which impeded transplantation and growth of plants.

United States: The Crop Reporting Board estimates that about 1,695,000 acres will be planted to tobacco in 1939. The harvested area in 1938 was 1,626,700 acres.

Area and Production of Tobacco.

COUNTRIES	AREA					PRODUCTION				
	1938 and 1938-39	1937 and 1937-38	Average 1932 to 1936 and 1932-33 to 1936-37	% 1938 and 1938-39		1938 and 1938-39	1937 and 1937-38	Average 1932 to 1936 and 1932-33 to 1936-37	% 1938 and 1938-39	
				1937 and 1937- 1938	Aver- age				1937 and 1937- 1938	Aver- age
	ooo acres					ooo pounds				
				= 100	= 100				= 100	= 100
*Albania . . . . .	...	5	4	102.9	109.8	2) 73,855	3,307	3,076	108.1	105.1
Germany (1)	33	32	30	84.7	74.3	10,529	68,343	70,292	83.4	70.7
Belgium	5	6	7	92.7	122.1	77,997	12,630	14,894	48.5	64.6
Bulgaria	89	96	73	...	...	68,770	58,528	76,333	...	...
*France . . . . .	...	45	44	85.8	101.0	91,656	111,530	111,530	60.0	82.2
Greece	202	236	200	93.0	75.5	43,854	45,008	55,459	97.4	79.1
Hungary	33	36	44	102.6	93.5	90,961	94,631	98,897	96.1	92.0
Italy	81	79	87	...	...	32,210	30,035	19,595	107.2	164.4
Poland . . . . .	...	17	13	...	...	...	22,708	20,886	...	...
*Romania	43	35	33	120.6	129.2	...	2,379	2,149	...	...
*Switzerland . . . .	...	1	1	96.6	95.0	...	30,944	31,407	...	...
*Czecho-Slovakia . .	23	24	24	...	...	...	45,818	25,394	...	...
*Yugoslavia . . . . .	...	51	35	...	...	...	...	...	...	...
*U. S. S. R.	3) 504	3) 503	511	100.1	98.6	...	4) 413,649	...	...	...
Canada	83	69	49	120.8	171.1	85,142	71,459	47,643	119.1	178.7
Cuba	112	122	106	91.8	105.4	55,321	55,398	40,593	99.9	136.3
United States	1,627	1,735	1,459	93.8	111.5	1,455,970	1,552,601	1,184,512	93.8	122.9
Mexico . . . . .	...	...	35	...	...	20,283	25,353	26,230	80.0	77.3
*Burma	96	99	97	96.8	99.1	...	98,560	95,872	...	...
Chosen	48	45	37	105.5	129.0	57,869	58,398	41,894	99.1	138.1
*India . . . . .	...	1,214	1,208	...	...	...	1,120,000	1,308,608	...	...
*Iran . . . . .	...	25	28	...	...	...	35,128	36,721	...	...
Japan	92	85	85	107.2	107.9	144,602	142,375	142,342	101.6	101.6
*Palestine . . . . .	...	14	5	...	...	...	5,227	1,869	...	...
*Syria and Lebanon .	...	15	14	...	...	...	11,418	7,253	...	...
*Transjordan . . . .	...	2	—	...	...	...	1,218	649	...	...
Turkey . . . . .	...	233	132	...	...	134,908	140,886	87,801	95.8	153.6
Algeria	58	59	54	98.9	107.2	42,008	38,877	39,737	108.1	105.7
*Argentina	5	29	38	155.7	118.7	...	17,224	32,858	...	...
*Nyasaland (5) . . .	...	42	40	...	...	...	17,450	15,235	...	...
*Australia . . . . .	...	12	15	...	...	...	6,500	5,588	...	...
*New Zealand . . . .	...	3	2	...	...	...	2,250	1,392	...	...
TOTALS	2,748	2,885	2,411	95.0	113.7	2,376,985	2,566,804	2,039,947	92.6	116.5

* Not including in the total. — (1) Production for sale. — (2) Data published by the Reichsnährstand. — (3) Area provided for in the Plan. — (4) Average 1932, 1933, 1934 and 1936. — (5) European and native crops.

Indochina: Growth in Annam was good at the end of January except in some provinces where the yield of lower leaves was reduced by drought. In Cochinchina the yield of mid-season crops was satisfactory. Growth of main crop was good in both Cochinchina and Cambodia at the end of January.

Algeria: The weather in February was favourable for the growth of seeds in seed-beds and for the preparation of ground for planting-out. It is anticipated that transplanting will be carried out early this year.

Nyasaland: It was reported in January that heavy rains had adversely affected the tobacco crops.

Current information on Other Products.

Cacao.

Trinidad: It was reported in January that cacao pickings indicated that the crop would be the lowest on record, owing to excessive rainfall.

Gold Coast and Togoland under British Mandate: MAIN CROP 1938-39. — During the first half of January weather conditions were very favourable for drying but only moderate for growth. The purity level was reported to remain well up to average. Exports during the first half of January were approximately 42.1 million lb. bringing the total for the 3½ months to about 190 million lb. Movement in the Colony was normal.

The improved weather conditions facilitated harvesting and drying with the result that about 87 per cent. of the crop had been collected by the middle of January.

The situation of the crop on January 15 was as follows:

	million lb.	% of the estimated
Exports to mid-January (excluding 31 million lb. of old crop)	159	28
Stocks in merchants' hands	199	36
<i>Total marketed</i>	<i>358</i>	<i>64</i>
Stocks in farmers' hands	130	23
<i>Total harvested</i>	<i>488</i>	<i>87</i>
Ripe on farms (estim.)	50	9
Still to ripen off	22	4
<i>Total crop (estim.)</i>	<i>560</i>	<i>100</i>

Tea.

India: In North India very little tea was plucked in December and the season has closed. There was an increase of 17,007,760 lb. on the outturn to the end of December 1937. In South India light rain fell throughout the area toward the end of December and this was considered slightly beneficial. The outturn in the South was 13.1 per cent. ahead of that to the same date last season.

Indochina: Picking gave poor results in January in Tonkin. Growth was checked. In Annam growth was good at the end of January.

Coffee.

Brazil: The total quantity of coffee destroyed in Brazil since 1931 to the end of February 1939 amounted to 86,382,000 centals, of which 4,680,000 were destroyed in the first eight months of the present commercial season (July 1, 1938 to February 28, 1939) and 346,000 in February. Stocks in Brazilian ports on February 28 were 4,489,000 centals, of which 3,064,000 were in Santos, 884,000 in Rio de Janeiro and the remainder in other ports.

Netherlands Guiana: The coffee crop this season is reported to be very small.

Haiti: The weather in January was favourable for coffee plantations and the condition of crops was considered good.

Angola: The forecasts of an average coffee crop in the 1938-39 season are confirmed.

Tanganyika: In January, prospects for the coming coffee season in the Arusha district were reported to be good.

Hawaii: According to January reports crop prospects for 1938-39 are average.

New Caledonia: Picking of the *Robusta* variety was assisted by fair weather. Yields this season are very high.

Groundnuts.

Bulgaria: According to the most recent estimate the, area cultivated to groundnuts in 1938 was about 7,060 acres against 7,030 in 1937 and 2,330 on the average of the five years ending 1936; percentages 100.3 and 302.8. The corresponding production is estimated at about 48,000 centals against 65,140 and 20,700; percentages, 73.6 and 231.6.

Argentina: Rains in January and February favoured the groundnut crops in the provinces of Santa Fé and Entre Rios and in central Córdoba. The area cultivated in the last province and in San Luis is smaller than that of last year as a result of the drought which prevailed at the time of planting. The crops in Corrientes and Tucumán were in average to good condition in February.

United States: The Crop Reporting Board estimates from reports on farmers' intentions that 2,319,000 acres will be planted to groundnuts in 1939. This estimate covers groundnuts grown for all purposes.

Netherlands Indies: Java and Madura. — The Department of Agricultural Statistics of the Central Statistical Office communicates the following details of the groundnut area:—

	1939 acres	1938 acres
Area harvested in January	37,600	40,000
Area of standing crops at the end of January	147,500	157,700

Indochina: Growth was satisfactory at the end of January in Cochinchina and Annam.

Egypt: According to the most recent estimate, the area cultivated to groundnuts in 1938 was about 23,800 acres against 22,900 in 1937 and 24,300 on the average of the five years ending 1936; percentages, 103.9 and 97.8. The corresponding production is estimated at about 345,600 centals, against 342,000 and 347,200; percentages 101.1 and 99.5.

Colza and Sesame.

Bulgaria: According to the most recent estimate, the area cultivated to colza in 1938 was about 60,600 acres against 8,580 in 1937 and 20,810 on the average of the five years ending 1936; percentages, 706.5 and 291.2. The corresponding production is estimated at about 550,900 centals (1,101,800 bushels) against 61,500 (123,000) and 148,600 (297,200); percentages, 895.9 and 370.8.

Area cultivated to sesame in 1938 was about 4,530 acres against 13,450 in 1937 and 21,430 on the average of the five years ending 1936; percentages 33.7 and 21.1. The corresponding production is estimated at about 7,360 centals (370 short tons) against 31,080 (1,550) and 62,380 (3,120); percentages 23.7 and 11.8.

Greece: Area cultivated to sesame in 1938 was about 92,390 acres against 88,370 in 1937 and 91,740 on the average of the five years ending 1936, percentages 104.6 and 100.7. The corresponding production is estimated at about 127,800 centals (6,400 short tons) against 218,000 (10,900) and 174,600 (8,700); percentages, 58.6 and 73.2.

Hungary: At the beginning of March winter colza was in good condition. Damage due to frost and the weight of the snow was light.

Poland: According to the most recent estimate, the area cultivated to colza in 1938 was about 163,560 acres against 146,390 in 1937 and 105,000 on the average of the five years ending 1936; percentages, 111.7 and 155.8. The corresponding production is estimated at about 1,579,800 centals (3,159,600 bushels) against 1,169,600 (2,339,100) and 797,000 (1,594,000); percentages, 135.1 and 198.2.

Romania: As a result of intense frost about the middle of March, winter colza which had begun to sprout and was not protected by snow suffered serious damage.

Egypt: According to the most recent estimate, the area cultivated to sesame in 1938 was about 20,200 acres against 19,000 in 1937 and 19,500 on the average of the five years ending 1936; percentages, 106.0 and 103.7. The corresponding production is estimated at about 134,900 centals (6,750 short tons) against 130,300 (6,500) and 126,800 (6,300); percentages, 103.6 and 106.4.

Current information on Fodder Crops.

Belgium: Clover was severely affected by the frequent night frosts of early February and was in very poor condition in the middle of the month. Part of the area was ploughed up and another part was sown with rye-grass. Meadows varied from mediocre to satisfactory. Catch crops, particularly turnips and choux moeliers, were almost entirely destroyed.

France: Night and morning frosts affected crops throughout February and in the beginning of March and delayed first growth. Moreover, the second half of February and the first half of March were wet. Except in certain well exposed positions stock at the end of February could still not be put out to graze.

Hungary: By the end of February preparation for mangel sowings had begun. Clover and alfalfa survived the winter in good conditions on the whole. The growth of permanent grass and pasture had begun in the warmer places.

Ireland: The weather was fine in the first ten days of February, but the rest of the month was wet. Pastures made very limited growth. Fodder supplies are smaller than usual and will be only barely sufficient to meet requirements.

The production of turnips in 1938 is estimated at 56,139,000 centals (2,807,000 short tons) against 61,289,000 (3,064,000) in 1937 and an average of 65,891,000 (3,295,000) in 1932 to 1936; percentages, 91.6 and 85.2.

The production of mangels is estimated at 34,592,000 centals (1,730,000 short tons) against 37,208,000 (1,860,000) in 1937 and an average of 36,111,000 (1,806,000) in 1932 to 1936; percentages, 93.0 and 95.8.

Italy: During the first half of February the fodder crops made satisfactory progress. The rains of the second half of the month brought a substantial improvement in condition.

Latvia: Supplies of ordinary and concentrated feed were sufficient during February. Except in the case of hay, which was below average, quality was satisfactory.

Poland: The following are the latest estimates of the production of certain fodder crops:—

Grain.

Lupin	(000 centals)	3,757	3,193	3,235	117.6	116.1
	(000 sh. tons)	188	160	162		
Field peas	(000 centals)	559	404	668	138.4	83.8
	(000 sh. tons)	28	20	33		
Serradilla	(000 centals)	1,471	922	1,519	159.5	96.8
	(000 sh. tons)	74	46	76		
Vetch and horse beans	(000 centals)	1,149	973	1,348	118.1	85.3
	(000 sh. tons)	57	49	67		
Mixture of cereals and legumes . . .	(000 centals)	1,775	1,567 (1)	1,454	113.3	122.1

Hay.

Field peas	(000 centals)	368	355	736	103.7	50.1
	(000 sh. tons)	18	18	37		
Serradilla	(000 centals)	2,005	1,341	2,897	149.5	69.2
	(000 sh. tons)	100	67	145		
Clover	(000 centals)	75,526	42,136	53,745	179.2	140.5
	(000 sh. tons)	3,776	2,107	2,687		
Vetch and horse beans	(000 centals)	1,104	980	2,291	112.7	48.2
	(000 sh. tons)	55	49	115		
Mixture of cereals and legumes . . .	(000 centals)	1,217	1,022 (1)	931	119.1	130.7
	(000 sh. tons)	61	51 (1)	47		
Other feed crops and mixtures . . .	(000 centals)	947	856 (1)	857	110.7	110.5
	(000 sh. tons)	47	43 (1)	43		
Permanent meadows	(000 centals)	197,168	164,110	173,571	120.1	113.6
	(000 sh. tons)	9,858	8,205	8,678		

(1) Average of 1935 and 1936.

United Kingdom: Winter keep has been heavily drawn upon but supplies should be adequate, except, in some districts, if spring is late.

Argentina: The condition of pastures at the beginning of March was excellent, following rains in February.

Algeria: The production of rotation crops – vetches and oats, *bersim* clover in particular – was large. Rotation meadows and pastures also made growth. lands The latter, however, are not yet sufficiently advanced, particularly on the high table and in the sublittoral area (Tell) of the département of Alger, where pastures have been flooded, and, in many cases, not available for grazings.

Egypt: Growth of the clover crop has been stimulated in February by adequate watering and rain. Third cutting is progressing in early areas, as also hay-making in northern districts. In Upper Egypt irrigated areas assigned to seeds are satisfactory and full of flowers.

Tunisia: The heavy rain and comparatively high temperature of February stimulated the growth of fodder crops. Except in flooded areas, rotation fodder crops are in good condition in the north (Bizerta and Tunis); they were making slower growth in the centre (Kef). Permanent grass was already abundant in most areas, except in the far north (1st region, Bizerta).

LIVESTOCK AND DERIVATIVES

Slaughterings and Meat Production in Germany in 1937 and 1938.

Number of Slaughterings in Germany (1937 frontiers) ¹

	Adult cattle	Cows ²	Calves	Pigs	Sheep	Goats
1938	4,275	2,109	5,072	22,604	1,968	500
1937	3,856	1,971	4,960	24,738	1,650	682

(1) Including animals imported for slaughter.

(2) Included in previous column.

Quantities available for consumption.

	Beef	Veal	Pigmeat	Mutton and lamb	Goat- meat	Total
	(million lb.)					
1938	2,555	474	5,428	107	21	8,661
1937	2,161	465	5,568	91	29	8,386

(lb. per head of the total population)

1938	37.54	6.97	79.76	1.59	0.31	127.27
1937	31.86	6.86	82.10	1.34	0.42	123.61

(lb. per full meat-eater)

1938	51.21	9.50	108.80	2.16	0.42	173.61
1937	43.65	9.39	112.46	1.83	0.60	169.36

Total meat production has increased despite a slight fall in the production of pigmeat.

Pigs in Denmark.

(Thousands)

CLASSIFICATION	1939	1938										1937	
	11 Feb.	31 Dec.	19 Nov.	8 Oct.	27 Aug.	16 July	18 June	7 May	26 March	12 Feb.	20 Nov.	9 Oct.	
Boars for breeding.	18	17	16	16	16	16	17	17	17	17	18	19	
Sows in farrow for first time . . .	109	82	67	54	40	55	63	93	108	97	51	43	
Other sows in farrow	145	143	147	156	160	155	145	132	126	142	139	130	
Sows in milk . . .	77	72	68	72	78	82	89	81	84	60	65	83	
Sows not yet covered (and not for slaughter).	19	23	24	25	26	24	23	21	16	15	24	29	
Sows for slaughter.	9	9	13	14	11	10	9	9	8	8	16	22	
Total of sows . . .	359	329	319	321	315	326	329	336	342	322	295	307	
Sucking pigs not weaned	648	603	581	642	678	689	731	687	743	512	550	734	
Young and adult pigs for slaughter:													
Weaned pigs under 35 kg. . .	618	639	676	706	726	717	698	677	566	590	839	848	
Pigs of 35 and under 60 kg. .	571	615	608	645	613	669	591	499	522	607	685	668	
Fat pigs of 60 kg. and over .	505	503	561	516	542	428	423	451	539	523	594	513	
Total pigs . . .	2,719	2,706	2,761	2,846	2,890	2,845	2,795	2,667	2,729	2,571	2,981	3,089	

Pigs population of Luxemburg.

CLASSIFICATION	1 - XII 1938	1 - XII 1937	1 - XII 1936	1 - XII 1935	1 - XII 1934	1 - XII 1933
Sucking pigs under 8 weeks	30,558	29,563	37,423	31,580	36,300	37,072
Young pigs from 8 to 12 weeks	22,228	21,259	25,497	20,659	23,349	64,179
Pigs from 12 weeks to 6 months	43,722	48,463	52,105	40,460	48,257	
Pigs from 6 months to 1 year:						
Boars for service	1) 423	1) 457	299	244	303	264
Brood sows:						
Sows in farrow	1) 5,002	1) 5,875	2,981	3,028	2,385	3,689
Other sows	1) 6,647	1) 6,084	2,350	2,253	3,401	
Other pigs for slaughtering	1) 25,140	1) 35,665	28,239	28,679	29,781	29,184
Pigs 1 years old and over:						
Boars for service	—	—	238	261	252	262
Brood sows:						
Sows in farrow	—	—	5,051	4,489	4,802	10,124
Other sows	—	—	4,000	3,625	4,430	
Other pigs	—	—	6,035	6,557	10,077	4,831
Total . . .	133,720	147,366	164,227	141,835	163,337	149,605

(1) 6 months old and over.

Winter Census of Livestock and Fowls in the United Kingdom.

The following table shows the number of the different categories of cattle, sheep, pigs and common fowl in England and Wales and Scotland on December 4, 1938 and 1937, and similar figures for Northern Ireland on January 1, 1939 and 1938.

CATEGORIES	England and Wales		Scotland		Northern Ireland		United Kingdom	
	1938	1937	1938	1937	1938	1937	1938	1937
	thousands							
<i>Cattle, total.</i>	6,849	6,761	1,352	1,253	701	682	8,902	8,696
Bulls and bull calves	149	142	30	27	4	4	183	173
Heifers in calf, with first calf	458	438	73	66	40	35	571	539
Cows in calf but not in milk	660	648	184	163	79	230	923	867
Cows and heifers in milk	2,050	2,040	258	250	160	160	2,468	2,468
Other cattle: under 1 year old	1,346	1,326	277	255	186	186	1,809	1,767
1 year old and under 2	1,304	1,272	233	207	157	156	1,784	1,725
2 years old and over	882	895	207	195	75	71	1,164	1,161
<i>Sheep, total</i>	13,899	13,740	6,355	5,843	551	561	20,805	20,144
Rams and ram lambs	323	253	132	121	17	17	472	391
Ewes for breeding	8,535	8,005	3,812	3,506	437	426	12,784	11,937
Other sheep: under 1 year old	4,318	4,973	2,106	1,963	71	91	6,495	7,027
1 year old and over	723	509	305	253	26	27	1,054	789
<i>Pigs, total</i>	3,854	3,914	280	260	566	523	4,700	4,697
Boars for service	32	32	3	3	2	1	37	36
Sows for breeding	447	448	32	30	60	53	539	531
Other pigs	3,375	3,434	245	227	504	469	4,124	4,130
<i>Common fowl, total</i>	36,601	36,163	5,205	4,987	5,638	5,792	47,444	46,942
under 6 months old	6,956	6,625	699	674	—	—	—	—
over 6 months old	29,645	29,538	4,506	4,313	—	—	—	—

Livestock in Sweden.

CLASSIFICATION	15 VII 1938	15 VII 1937	15 VII 1936	15 VII 1935	15 VII 1934
<i>Horses</i>	617,000	620,000	616,000	611,241	608,991
Foals under 3 years old	110,000	104,000	97,000	90,123	86,367
Horses 3 years old and over	507,000	516,000	519,000	521,118	522,624
<i>Cattle</i>	3,036,000	2,962,000	2,950,000	2,918,873	2,890,362
Calves	1,090,000	1,004,000	992,000	957,058	924,944
Bulls	28,000	30,000	29,000	27,779	26,854
Oxen	6,000	7,000	8,000	8,004	8,815
Cows	1,912,000	1,921,000	1,921,000	1,926,032	1,929,749
<i>Sheep</i>	406,000	405,000	429,000	443,797	449,077
<i>Pigs</i>	1,371,000	1,300,000	1,322,000	1,293,090	1,456,236
Young pigs and pigs for slaughter	1,239,000	1,166,000	1,181,000	1,158,555	1,312,580
Pigs for service	132,000	134,000	141,000	134,535	143,656

Slaughterings of meat animals in Switzerland.

The statistics of slaughterings of meat animals, published regularly by the Federal Bureau of Industry, Arts, Trade and Labour for 42 towns, include about half the entire slaughterings of Switzerland; these results therefore reflect fairly accurately the general movement of meat animal slaughterings in the country.

The following table gives the data from 1927, the first year for which comparable statistics for the 42 towns are available:

Years	Number of slaughtering		Net weight of slaughtering	
	Carcasses	Index No. 1937/31 = 100	Thousand lb.	Index No. 1927/31 = 100
1938	697,006	104	158,945	105
1937	682,714	102	151,751	101
1936	680,500	101	154,867	103
1935	748,142	111	170,215	113
1934	730,296	109	169,078	112
1933	719,382	107	165,866	110
1932	716,837	107	155,520	103
Average 1927 to 1931	672,435	100	150,872	100

Between 1937 and 1938 the total number of animals slaughtered during the year rose by 14,292, or 2.1 per cent., to 697,006 and the net weight by 7,194,000 lb., or 4.7 per cent., to 158,945,000 lb. The 1938 figures are 3.7 per cent. higher in number of carcasses and 5.4 per cent. higher in net weight than the averages for 1927 to 1931.

A comparison of quarterly slaughtering between 1937 and 1938 shows wide variations. The net weight in the first quarter of 1938 was 2.5 per cent. higher than a year before, in the second quarter 1.0 per cent. lower, in the third quarter 1.2 per cent. higher, while in the last quarter slaughtering were as much as 15.4 per cent. higher, owing to an epidemic of foot-and-mouth disease. During 1938 as a whole, slaughtering made necessary by foot-and-mouth disease in Switzerland totalled 15,299 head of large stock and 9,888 head of small stock. The importance of the increase in slaughtering in 1938 may be appreciated from the fact that imports of fresh meat and hams decreased by 5,549,000 lb. between 1937 and 1938.

The following table shows comparative figures for the different categories of animals slaughtered in 1937 and 1938.

CATEGORIES OF ANIMALS	Number of slaughtering				Net weight in thousand lb.			
	January-December		Difference		January-December		Difference	
	1938	1937	absolute	%	1938	1937	absolute	%
Bulls	13,583	21,377	- 7,794	- 36	10,960.1	17,437.5	- 6,477.4	- 37
Oxen	6,869	13,902	- 7,033	- 51	5,345.8	10,175.2	- 4,829.4	- 47
Cows	47,210	29,562	+ 17,648	+ 60	29,142.6	18,248.4	+ 10,894.2	+ 60
Heifers	28,708	18,914	+ 9,794	+ 52	16,835.2	11,216.9	+ 5,618.3	+ 50
Calves	205,208	198,358	+ 6,850	+ 3	25,334.7	24,489.3	+ 845.4	+ 3
Sheep	38,288	38,863	- 575	- 1	1,772.5	1,799.2	- 26.7	- 1
Goats	766	532	+ 234	+ 44	27.1	18.7	+ 8.4	+ 45
Pigs	353,587	357,912	- 4,325	- 1	67,819.0	66,281.3	+ 1,537.7	+ 2
Horses	2,787	3,294	- 507	- 15	1,708.1	2,084.3	- 376.2	- 18
TOTAL . . .	697,006	682,714	+ 14,292	+ 2	158,945.1	151,750.8	+ 7,194.3	+ 5

Slaughterings of bulls, oxen, cows and heifers show marked differences between the two years. In 1938 7,794 less bulls and 7,033 less oxen were slaughtered than in 1937, the fall in net weight being respectively 37 and 47 per cent. The principal reason for this drop is that imports of stock from abroad were reduced to a bare minimum. On the other hand slaughterings of cows rose by 17,648 head, or 60 per cent. in weight, and of heifers by 9,794 head, or 50 per cent. in weight. A slight increase also took place in slaughterings of calves, but a decrease in the case of pigs in spite of foot-and-mouth disease.

The differences for each category between changes in the number of carcasses and in the total net weight are due to changes in the average net weight per carcass, as shown in the following table.

	Net weight			Net weight	
	1938	1937		1938	1937
	lb.			lb.	
Bulls	807	816	Heifers	586	593
Oxen	778	732	Calves	123	123
Cows	617	617	Pigs	192	185

Livestock in the U. S. S. R.

Official estimates of the numbers of livestock in the U. S. S. R. in 1937 and 1938 are given below with the figures for previous years.

Years	Horses	Cattle	Sheep and Goats	Pigs
		(thousands)		
July 1 1938:	17,500	63,200	102,500	30,600
" " 1937	16,700	57,000	81,300	22,800
" " 1936	16,600	56,500	73,300	30,400
" " 1935	15,881	49,226	61,051	22,550
" " 1934	15,649	42,422	51,925	17,450
" " 1933	16,579	38,380	50,224	12,068
" " 1916	35,771	60,563	121,202	20,875

Favoured by the good crops of 1934-35 and 1935-36, numbers of livestock began to rise from the low levels of 1933 and 1934. The agricultural year 1936-37 was a year of relatively poor production and the increase in livestock numbers slowed down. The number of sheep and goats on July 1, 1937 increased by only 10.9 per cent., a lower rate than that shown in earlier years. There was little change in the numbers of horses and cattle while pig numbers fell by 25 per cent. The good crop of 1937-38 had favourable effects and all classes of stock increased considerably on the levels of the previous year, horses by 4.8 per cent., cattle by 10.9 per cent., sheep by 26.1 per cent. and pigs by 34.2 per cent.

The 1938 numbers, compared with those of 1916, show the following percentages:— horses 48.9, cattle 104.4, sheep and goats 84.6 and pigs 146.6.

Livestock in the United States.

Estimates of the numbers of livestock on farms in the United States on January 1, 1939, as compiled by the Crop Reporting Board of the Bureau of Agricultural Economics, are reproduced below together with the comparative figures of the numbers on January 1 in each of the three preceding years, some of which have been revised, and the average of the ten years 1927 to 1936.

	1939	1938	1937	1936	Average 1927-36
	(Thousand head)				
Horses	10,800	11,128	11,445	11,635	13,185
Mules	4,382	4,428	4,568	4,684	5,227
Cattle, total	66,821	66,083	66,803	67,929	64,511
Cows and heifers, 2 years old and over, kept for milk	25,093	24,834	24,993	25,439	24,304
Sheep	53,762	52,682	52,489	52,022	50,588
Pigs	49,011	44,218	42,770	42,837	54,884
Chickens 3 months old and over . .	412,647	386,573	420,257	401,238	440,971

The figures show a general tendency to expand production of meat and animal products, all categories except horses and mules being larger than a year earlier.

The estimated number of horses, including colts, on farms on January 1, 1939, was 10,800,000 head, a decrease of 3 per cent. For the first time since 1932 the number of colts under 1 year old on January 1 was smaller than a year earlier. The number of mules, at 4,382,000 head, was down by 1 per cent. but the number of mule colts under 1 year increased further in 1938 and was the largest since 1928.

The estimated number of cattle on farms this year was 66,821,000, an increase of 738,000 head, or 1 per cent., on the number on January 1, 1938. Although numbers were up in nearly all States, sharp decreases were shown for Texas, New Mexico and Arizona from which States movements last year were of near record size. The increase this year was largely in calves and yearling heifers with the estimated number of steers somewhat smaller. The number of milk cows (cows and heifers two years old and over kept for milk) was 25,093,000 head, an increase of 259,000 head, or 1 per cent. The number of yearling heifers being kept for milk cows, at 5,138,000, was up 264,000 or 5 per cent. and the number of heifer calves being kept for milk cows of 5,635,000 was up 248,000 head.

The number of sheep and lambs, at 53,762,000, showed an increase of 1,080,000, or 2 per cent. The number of sheep and lambs on feed for market, at 5,700,000, was 297,000 head smaller than a year earlier. The number of stock sheep, at 48,062,000 head, was 1,377,000 head, or 3 per cent., larger. The increase in stock sheep was about the same both in the number of ewe lambs being kept for breeding ewes and in ewes 1 year old and over.

The estimated number of pigs on January 1 this year was 49,011,000 head, an increase of 4,793,000 head, or 11 per cent., over a year earlier. The number at the beginning of this year was the largest since 1934. All the increase was in pigs under 6 months old and in sows and gilts for breeding, with the number of other pigs smaller.

The number of chickens three months old and over on farms on January 1, 1939 was 412,647,000, an increase of 7 per cent. on the low figure for January 1, 1938.

Milk Production in the United States.

With feed supplies ample and pastures the best in years, milk production on farms of the United States in 1938 is estimated to have reached the record level of 107,155,000,000 lb., an increase of 4 per cent. on 1937. The previous peak was 104,753,000,000 lb. in 1933, just prior to the great drought of 1934. Figures for recent years are as follows:

	Milk Cows * (thousand head)	Milk Production	
		Per Cow (lb.)	Total (million lb.)
1938	23,706	4,520	107,155
1937	23,710	4,350	103,132
1936	23,988	4,301	103,183
Average 1927-36	23,194	4,352	100,718

* Average number during year, heifers not freshened excluded.

The increase in production over 1937 was shared by nearly all parts of the country, but was particularly sharp in some Central and Western Maize Belt States and in the Great Plains area where production was sharply reduced during the drought years. In the 10 States from Oklahoma, Colorado and Utah northward, production was lower than in some years prior to recent droughts, but elsewhere production was relatively high and in 31 States higher than in any of the 9 previous years.

Milk production per cow in 1938 is estimated to have averaged 4,520 lb., the highest since 1929. Production per cow has increased each year since 1934 when it averaged only 4,029 lb. In all groups of States production per cow in 1938 equalled or exceeded production in any year since 1929.

The average number of milk cows on farms during 1938 was practically the same as during 1937. Small increases, notably in the Atlantic Coast States from New York to Virginia, in the Pacific Northwest, and in Michigan, Wisconsin, Tennessee, Louisiana and Texas, were offset by moderate decreases elsewhere, mostly in the Northern Plains States. The number on farms during 1938 was the smallest since 1931 but the low point now appears to have been passed. Increases in the number of heifers and heifer calves kept for milk cows during the past year are expected to be reflected in increased numbers of milk cows within the next two years.

Wool Production in the United States.

Wool production in 1938 is estimated at 436,510,000 lb. against 432,809,000 lb. in 1937. Of the total this year 372,810,000 lb. of wool were shorn and 63,700,000 lb. were pulled. The number of sheep shorn in 1938 is estimated at 46,726,000 against 45,298,000 in 1937. The average fleece weight was the same in both years 7.98 lb.

Casein Production and International Trade.

Recent chemical research has discovered a large number of new materials, which, at first intended only for use as substitutes, have unexpectedly found entirely new uses. The elements for the production of these materials are mostly of mineral origin; a small number only are derived from agricultural products. Among the latter is casein, a by-product of butter manufacture obtained from skim milk by precipitation. Cow milk contains about 3 per cent. of casein.

The industrial production of casein was begun in the last quarter of the 19th century, but was only developed on a large scale in this century. Casein can be used for a large number of purposes. The best known and one of the most important uses is in the manufacture of galalith. Even larger quantities of casein are used in the paper industry as a size in the manufacture of glazed papers, especially for half-tone illustration and as a fixing agent in colour printing; for this purpose casein has replaced gelatine and starch. In addition, very large quantities are employed in the manufacture of cold glue used in the construction of aeroplanes. Casein is used as a binder in the manufacture of water colours and, to some extent also, of oil colours. It is used as a dressing for textiles. It is also made into medicines and food products (Sana-togen, Plasmon, Eucasein) and acts as a base for certain medicaments. Concentrated feed for livestock is also manufactured from casein. For human consumption it is used in ways that are not generally known to the consumer. It is an important element in many concentrated soups and is also used in baking powders for bread-making and as a filling material in sausage-making. A new method of utilizing casein is provided by the invention of Lanital or artificial wool from casein, but it is not yet possible to forecast the extent of the development of this industry. This will depend among other things on the possibility of producing the necessary casein at economic prices.

In regard to terminology, it should be noted that the term "casein" is at present used in a vague sense, sometimes covering all the different stages in the transformation of casein from its colloidal state in milk to a finished piece of galalith. This imprecision is particularly noticeable in statistical data. The caseinogen contained in milk in colloidal form may be converted into casein by various processes which result in products with different properties. From the skim milk is obtained by natural fermentation, in most cases by admixing a reagent, natural-sour casein (lactic acid) the most important quantitatively. By precipitation with rennet is obtained rennet casein which, like hydrochloric

acid casein, is used for the manufacture of galalith. There are also other processes of manufacture of casein for human consumption, for stock feed and for textile casein. Statistical returns only in exceptional cases take account of these different types.

The manufacture of casein enables the production of a non-perishable commodity from the by-products of butter manufacture. Thus the production of casein is heavily influenced by trends in butter manufacture and milk production, particularly as it may be used to absorb excess supplies of milk. Moreover, casein manufacture is sometimes only a utilization of unwanted residues when the direct use of curds, for example, in the manufacture of sour milk cheese is impossible. For this reason the large overseas butter producing countries, including the United States of America, are among the largest casein producing countries. Argentina is the principal producing country. It may therefore seem strange that the third largest producer is France, a country with dense population and with a large and world-famous production of cheeses. The explanation of France's large production of casein may partly be found in the fact that the cheeses produced are principally cheeses rich in fats. It may be noted that by contrast in Germany, where the production of milk per head of the population is about 10 per cent. higher than in France, production on a vast scale only began in the last few years as a result of import difficulties.

Production statistics are very incomplete. For Argentina, the largest exporting country, there are no production statistics. Exports figures, however, may be taken as giving an indication of production, even if their annual variations do not correspond very closely to those of production. For France also, another large exporting country, production statistics are scanty. Until recently there was only one estimate of production, a trade estimate made about 1932 giving an annual production figure of 33,000,000 lb. of which about 6,600,000 lb. was consumed in France. This indication is in accord with exports from

Production of Casein.

in (000 lb.)

COUNTRIES	1938	1937	1936	1935	1934	1933	1932	1931	1930
United States (a)	46,140	37,638	37,331	24,087	35,335	41,965	30,537
France	27,902	...	...	...	...	...	...	(1) 33,069
Germany	12,527	2,268	750	...	...	...	...	...
Italy	9,921	...	...	...	...	...	...	...
New Zealand	9,738	...	...	...	...	...	...	...
Norway	7,067	6,962	2,883	3,115	2,391	1,964	1,857	2,803
Netherlands (2)	5,273	5,388	2,178	2,866	...	...	...	...	...
Australia (2)	3,731	2,424	2,573	1,766	1,365	2,569	3,340
Canada	998	1,336	1,204	1,904	738	367	...	...
Estonia	439	467	470	423	175	88	257	461
Hungary	411	504	204	130	159	64	189	1,040
Sweden (a)	86	105	158	97	—	29	203
Sweden (b)	274	427	431	57	52	11	797

(a) Dried. — (b) Crude.

(1) Semi-official estimates. — (2) Calculated from weekly averages. — (3) Commercial year ending on June 30 of the year indicated.

1927 to 1931, but from that year to 1938 inclusive exports have been much lower, except in 1936, when they reached 33,654,000 lb. In that year the quantity of casein used for manufacture also appears to have been particularly high, for exports under the category "hardened casein and other artificial plastics of vegetable origin" exceeded the average of 1932 to 1935 by over 50 per cent. Total production in 1936 may accordingly be estimated at over 40,000,000 lb. Casein production in 1937 is put at 27,902,000 lb. This reduction, which, judging from the export figures, was accentuated in 1938, is probably a consequence of foot-and-mouth disease.

The United States have published statistics of production for a considerable number of years. For a long time this country was one of the largest casein producers and recently has even come near to displacing Argentina as the largest producer. United States production figures, though showing more violent annual fluctuations than Argentine export figures, show a strong tendency to rise. For the last years, figures are not yet available, but the heavy reduction of imports indicates a large production. The situation in the United States is radically different from that in Argentina and France, for her own production has to be augmented by imports.

In Germany casein production, from a comparatively low level, has risen so rapidly in the last three or four years that it has passed that of all countries except Argentina, the United States and France. Production in Germany is now about half the production in France. This development is regarded in Germany as a regrettable consequence of the difficulties of foreign trade, for it would be preferred to use the material employed in casein production for human consumption. Production in 1938 was estimated before the end of the year at about 13,000,000 lb., which would only represent a slight increase on the previous year.

Production statistics for New Zealand are available only for the year 1936-37, when dairy factory production totalled 9,651,000 lb. Of this total, by far the greater part was exported, so that export figures for New Zealand may be taken as closely reflecting production. Exports in 1938 fell very heavily and reached a lower level than these of the Netherlands.

Figures for the Netherlands are only available since 1935 but prior to that year considerable quantities of casein were manufactured. The figures in the table, showing a large increase in casein manufacture, were calculated by the Institute on the basis of the weekly production figures.

In Italy, according to the Industrial Census of 1937, total dry casein production amounted to 9,920,000 lb.

Among the countries which do not publish statistics of production are the U. S. S. R. and Japan, the latter an increasingly important importing country.

A comparison of production statistics shows large fluctuations from one year to the next, which are due to the special nature of this product. In fact, in view of the conditions of casein manufacture, it is surprising that production in the various countries does not fluctuate more violently.

A typical example of a similar tendency in the production of the various continents was provided in 1936 when large outturns were recorded in most

of the important producing countries. Although supplies in general were ample, exports from Argentina and France were particularly heavy. One must conclude that production was plentiful also in these countries. These identical developments of production may be accounted for the uniformly favourable weather conditions and by the general situation of the butter market.

The total production of casein in the countries for which production or export figures are available amounted in 1936 to about 161,000,000 lb. against 128,000,000 lb. in 1935. The figure for 1933 was still lower at 117,000,000 lb. In that year the poor production of France and the United States was only partly offset by the record exports of Argentina.

The production figures generally comprise all kinds of casein but some indications of the composition of the aggregate are available. The most detailed returns are those for Germany given in the statistics of the *Hauptvereinigung der deutschen Milch und Fettwirtschaft* (German Milk and Fats Association) which may be taken as official and which are reproduced in the production table. Production in 1937 reached 13,000,000 lb. and was made up as follows:—

11,000,000 lb	of lactic acid casein;
1,000,000 „ „	edible casein;
140,000 „ „	hydrochloric acid casein;
35,000 „ „	rennet casein;
130,000 „ „	fodder casein.

The estimate for France indicates that 9,000,000 lb. of the total consist of rennet and the remaining 11,000,000 of lactic acid. In the Scandinavian countries and in Australia and New Zealand, rennet casein predominated, at least in less recent years. Argentina produces lactic acid casein almost exclusively. In the United States, according to an old estimate probably referring to 1927, about three-quarters of the casein production were used for the manufacture of casein. Lactic acid casein predominates in the proportion indicated or perhaps to a greater extent. Practically all the Italian production (9,000,000 lb. out of 10,000,000 lb.) is used for industrial purposes.

Though the composition of the total is not clear, the greater part consists of lactic acid casein.

Several countries are both importers and exporters, partly because the kinds imported are different from those exported, but in some cases the explanation is that statistics include casein and casein products in the same classification. Foreign trade statistics comprising only finished products of casein have not been taken into consideration here.

To fill up the gaps in production figures, reference has often been made to trade figures, those of exports in particular. We have seen that two of the three principal producing countries do not transform their casein, or do so only to a limited extent, while the third, the United States, appears among the importing countries. Argentina and France export large quantities varying between three-quarters and three-fifths of the total exports. Since the quantities for other countries given in the tables also include processed casein, the real share of these two countries may be even somewhat greater. Ever

since the war, Argentine exports have been greater than those of France. Very often they have been twice as large or more as in the years up to 1926 and between 1932 and 1934. In other years the difference was slight, as in 1927, 1930 and 1931. After 1933 the difference between the exports of the two countries has diminished steadily. In 1936 exports from France reached their maximum. France succeeded in securing an outlet on the North American market, mainly because the quality of her casein was better and because she could offer rennet casein. The contraction in German imports appreciably affected both countries, especially Argentina, since Germany manufactures lactic acid in particular. In addition, French rennet casein had to face competition from the Scandinavian countries.

Exports of Casein.

(ooo lb.)

COUNTRIES	1938	1937	1936	1935	1934	1933	1932
Argentina	29,436	34,117	43,945	37,620	44,825	50,792	38,978
France	⁽ⁿ⁾ 20,721	⁽ⁿ⁾ 22,189	⁽ⁿ⁾ 33,354	⁽ⁿ⁾ 26,069	⁽ⁿ⁾ 21,387	^(g) 20,960	^(g) 21,120
New Zealand	4,217	8,684	9,054	7,299	6,467	5,451	4,790
Netherlands	^(g) 4,669	^(g) 3,865	^(g) 1,608	^(g) 985	1,592	384	215
Norway	2,424	2,589	2,758	2	1,438	343	786
Denmark	1,685	4,402	2,511	925	2,817	79	142
Australia	1,428	2,052	1,888	1,594	1,264	1,051	1,720
India . . . . .	...	¹⁾ 1,409	¹⁾ 1,283	¹⁾ 891	¹⁾ 919	¹⁾ 874	¹⁾ 595
Germany	920	783	732	1,232	1,328	2,238	3,448
Italy	834	25	165	195	1,212	1	6
Estonia	312	616	463	752	366	23	30
Finland	264	291	533	74	...	...	...
Sweden . . . . .	...	183	316	324	480	190	114
Hungary	2	165	371	1	15	656	476
United Kingdom . . . . .	...	124	253	318	350	245	226
Belgium Luxemburg	115	124	195	166	347	219	114
Canada . . . . .	...	3	58	—	3	—	34
Latvia . . . . .	...	—	5	22	41	—	—
Lithuania . . . . .	...	6	...	...	...	...	...
Switzerland	1	22	4	5	12	1	5

(ⁿ) Net weight. — (^g) Gross weight.

(¹⁾ Fiscal year ending March 31 of year stated.

Another feature of trade movements was a considerable increase in the imports of the Netherlands which are both importers and exporters. Imports predominated in 1931 and 1932 but exports have increased since 1936 to such a point that they now far exceed imports. Imports do not show variations greater than those recorded in earlier years.

Exports from New Zealand fell last year, those from Norway increased while those of Italy were irregular. The German exports include certain manufactured products under casein.

The total volume of exports mainly depends on the exports of Argentina and France. The share of the other exporting countries is, however, increasing. Exports in post-war years, on the whole, show a considerable expansion. They

have risen from about 44,000,000 lb. in 1923 to 66,000,000 lb. and reached their peak (99,000,000 lb.) in 1936. The latest rise was mainly due to the heavy exports from France. Not unnaturally, there was then a change which is of particular importance because the import requirements of the chief importing country hitherto were considerably reduced, at least for some time by the expansion of its own production. In 1937, total exports were 22,000,000 lb. lower than in the previous year. This reduction was shown in the exports of France and Argentina. As we have seen from the still incomplete and partly provisional figures for 1938, there was in that year a further but less substantial reduction. This latter decline was felt by New Zealand whose exports were not half those of the preceding year.

Germany is the main importer of casein. Her position among the importing nations resembles that of Argentina among the exporters. In the record year 1934, her imports were more than half the world total. After 1936 they fell in two years to half their previous volume, being replaced by internal production. Since the total from the two sources is now smaller than the imports of earlier years, it appears that the raw materials are being utilised with moderation. In 1938 also, Germany, despite this contraction, was the largest importer

Imports of Casein.

(000 lb.)

COUNTRIES	1938	1937	1936	1935	1934	1933	1932
Germany	18,891	25,072	39,132	35,478	44,174	36,226	34,829
United Kingdom	18,622	20,339	15,856	18,940	20,857	14,840	16,926
Japan	8,023	15,052	10,153	9,862	8,327	7,885	5,652
United States	417	5,120	16,209	3,230	1,491	8,141	1,201
Finland	4,925	4,434	3,717	2,680	2,824	2,331	1,945
Italy	4,732	3,365	226	1,701	2,151	4,245	3,433
Czecho-Slovakia . . . . .	...	3,118	2,693	2,310	2,333	1,128	284
Belgium-Luxemburg	2,122	3,068	2,721	2,138	1,416	1,863	1,388
Austria	2,006	2,465	2,251	2,038	1,787	1,388	1,783
Sweden . . . . .	...	2,069	1,995	1,612	1,380	1,767	1,427
Netherlands	n) 1,768	g) 1,358	g) 937	g) 995	g) 2,195	700	1,043
Spain . . . . .	...	...	...	2,703	2,572	2,487	2,071
Poland	1,447	797	757	378	521	—	—
Latvia	60	826	1,433	1,508	1,592	983	980
Switzerland	562	1,185	810	1,463	1,189	915	803
Norway . . . . .	...	470	543	554	346	327	352
Canada . . . . .	...	402	140	111	56	47	69
Lithuania . . . . .	...	383	324	269	368	55	68
Estonia	144	289	157	277	597	602	534
Denmark . . . . .	...	26	133	199	227	219	252
Australia	141	61	76	79	16	141	17
Romania . . . . .	...	6	15	4	2	39	30
Bulgaria . . . . .	...	3	4	5	4	7	36
Hungary	2	0	—	167	8	1	3

(n) Net weight. — (g) Gross weight.

but the difference between her imports and those of the United Kingdom has become insignificant.

Japan's imports of casein have increased steadily but the available figures do not go beyond 1936. Imports increased from 4,000,000 lb. in 1930 to

10,000,000 lb. Japan is thus third among the importers. The United States, often the principal importer up to 1925, has not only given second place to the United Kingdom, except for 1936, but seems likely to disappear from the importing group owing to the increase in home production. However, in view of the sharp fluctuations in casein production, it must not be expected that the United States will cease importing entirely. There is, however, some uncertainty as to the world market in view of the parallel development of production in Germany.

On the whole, the yearly fluctuations in imports are not as wide as those in exports since exports are subject to very changeable natural factors whereas imports depend on industrial requirements which are generally more stable. The few countries which show substantial variations in their imports are those which have to supplement the national production.

W. SCHUBRING.

Current information on Livestock and Derivatives.

Estonia: At the end of February milk production was higher than a month earlier. Feeding conditions were satisfactory, although carting of fodder was difficult owing to the lack of snow on the roads.

France: Foot-and-mouth disease is still declining but generally speaking, animals that have been affected are in rather poor condition and are only slowly recovering. Minor symptoms are rather numerous. The lack of dry fodder and the delay of growth on meadows and pastures will cause some feeding difficulties in the next two months. This situation is already reflected in the market where offers of animals are numerous.

Ireland: Milk production was lower in February than last year.

Latvia: During February, milk production increased by 5 to 10 per cent. on the preceding month and on the corresponding month in 1938.

Netherlands: Feeding conditions for milk cows were good in all parts of the country in February, some areas being especially favoured.

Compared with the same month last year, milk production increased by 2 per cent. in the country as a whole. In Gelderland, Utrecht, Zeeland, South Holland and North Brabant, milk production hardly differed from the normal. In Groningen, Drente, North Holland and Limburg it increased by 1 to 2 per cent. and in Friesland and Overijssel by 6 per cent.

United Kingdom: The health and condition of ewes were generally satisfactory in February, but in a number of districts considerable hand feeding had been necessary. Hill sheep improved in condition as a result of the mild weather. Lambing became general in February, except in the north and among hill flocks. Prospects were favourable.

Cattle and sheep have done reasonably well. Milk yields were maintained at seasonal levels with the aid of concentrates.

Argentina: The condition of stock at the beginning of the month was excellent.

Canada: Snowfall in February was unusually heavy, particularly in Eastern Canada. The Prairie Provinces also received a normal covering of snow, and the distribution was more uniform than in recent years. Farmers found it difficult to secure their hay supplies from stacks embedded in the snow and those hauling their produce over country roads experienced some trouble in making regular deliveries.

Stocks of feed were holding out well. There seemed to be a surplus of hay in northern Ontario, parts of Quebec and in the Maritimes, although some of it was of poor quality.

There was no evidence of a decline in freshenings.

As in January, milk production per cow was appreciably higher than in the corresponding month in 1938 and March is also expected to show an increase over last year.

United States: Milk production on February 1 was only slightly above the normal winter level but showed somewhat more than the usual seasonal increase during January in nearly all groups of States. Reports from crop correspondents also showed a production per cow on February 1 of 12.9 lb., or 5 per cent. more than a year earlier and 5 per cent. above the February 1 average for the previous ten years. In all sections of the country an unusually large percentage of the milk cows were being milked for the season and all sections, particularly the western Maize Belt and northern Great Plains were favoured by remarkably mild weather during January. The principal cause of the generally heavy production of milk per cow, however, was the low price of grain and the tendency to feed milk cows liberally in order to secure some additional income from the unusually large supply of feed grain on hand.

Allowing for a slight increase in the number of milk cows as well as for the increased production per cow, the daily volume of milk produced in the United States about February 1 was probably nearly 6 per cent. above the quantity a year earlier and larger than in other years except 1933.

Algeria: The situation improved somewhat during February but is still not very satisfactory owing to the lack of feed following cold and floods. Fodder supplies for animals were still, at the end of the month, insufficient in the sub-littoral (Tell) of the département of Alger, on the high tablelands and in certain parts of the South. In certain parts an abnormal mortality has occurred owing to the poor condition of animals and the consequences of parasitic diseases. A return of cold weather would seriously affect stock. No contagious disease, however, was reported on any large scale during the month.

French Morocco: Weather conditions in February were favourable for grazings which are improving everywhere. Feed supplies for animals are assured.

Union of South Africa: Conditions were generally very dry in the interior in the first three weeks of January, and some trekking was necessary. In the last week good rains fell throughout the east and most of the centre of the Union, greatly improving pastures and conditions for stock. Drought conditions prevailed in the west of Cape Province, but stock generally are still in fair condition.

Current information on Sericulture.

Indochina: At the end of January, pruned mulberries were beginning to sprout in Annam. New shoots were planted in good conditions in some provinces.

Current information on Sericulture.

Production of Fresh Cocoons.

COUNTRIES	QUANTITIES OF EGGS PREPARED FOR INCUBATION					PRODUCTION OF FRESH COCOONS				
	1938	1937	Average 1932 to 1936	% 1938		1938	1937	Average 1932 to 1936	% 1938	
				1937 = 100	Average = 100				1937 = 100	Average = 100
ooo ounces					ooo pounds					
Bulgaria	38	31	27	121.8	139.9	4,803	3,618	3,040	132.8	158.0
France	11	13	16	88.9	71.9	1,316	1,422	1,867	92.5	70.5
Greece	78	61	60	126.4	129.6	7,496	6,617	5,292	113.3	141.6
Italy	349	489	463	71.5	75.4	44,028	70,459	66,741	62.5	66.0
Yugoslavia	14	19	20	72.9	71.1	1,059	1,114	1,185	95.0	89.3
U. S. S. R.	—	—	—	—	—	2) 48,362	2) 44,367	35,104	—	—
Cyprus	2	2	2	114.3	160.4	331	295	307	112.3	107.7
Chosen { (s)	203	206	217	98.5	93.2	31,408	31,975	31,903	98.2	98.4
{ (2)	139	148	136	94.1	102.5	16,858	18,173	15,900	92.8	106.0
Japan { (s)	2,069	2,339	2,617	88.5	79.0	337,832	376,198	380,909	89.8	88.7
{ (2)	2,449	2,713	3,067	93.0	79.9	284,235	307,822	351,255	92.3	80.9
Syria and Lebanon. . .	34	32	40	104.9	86.0	3,241	2,923	2,996	110.9	108.2
TOTAL	—	—	—	—	—	780,969	864,983	896,499	90.3	87.1

(s) Spring cocoons. — (2) Summer-autumn cocoons. — (1) Approximate data. — (2) Quantities relate to spring rearings delivered to the Government up to the beginning of July.

LATEST INFORMATION

PRODUCTION

Yugoslavia: The first estimates of area harvested and production of the principal agricultural products in 1938 are as follows.

PRODUCTS	1938			PRODUCTS	1938		
	Area harvested ooo acres	Production			Area harvested ooo acres	Production	
		ooo centals	ooo bushels			ooo centals	ooo pounds
Maize (1)	6,802	104,849	187,232	Flax	35	285	28,478
Potatoes (2)	658	37,714	62,855	Hemp (fibre).	141	1,229	122,921
Linseed	(3) —	30	53	Hemp (seed)	(3) —	66	6,597
Colza	44	198	395	Tobacco	40	324	32,425
			ooo American gallons				ooo short tons
Olive-oil	—	135	1,797	Sugar-beet	72	12,287	614
		ooo Imperial gallons					ooo bales of 478 lb.
Vines (wine)	499	102,778	123,428	Cotton (ginned) . . .	12	27	6

(1) Second estimate. — (2) Winter potatoes + spring potatoes and mixed crop (for production only). — (3) Included in the area of crops for fibre.

TRADE

COUNTRIES	JANUARY				SIX MONTHS (August 1-January 31)				TWELVE MONTHS (August 1-July 31)	
	EXPORTS		IMPORTS		EXPORTS		IMPORTS		EXPORTS	IMPORTS
	1939	1938	1939	1938	1938-39	1937-38	1938-39	1937-38	1937-38	1937-38
Wheat. — Thousand centals (1 cental = 100 lb.).										
<i>Exporting Countries:</i>										
Bulgaria	0	605	0	0	0	2,859	0	0	4,666	0
Hungary	821	241	0	0	8,632	2,484	0	0	4,053	0
Lithuania	154	0	0	0	401	0	0	0	41	0
Poland-Danzig	126	0	0	30	383	1	65	64	36	241
Romania	2,564	1,004	0	0	16,414	13,500	0	0	19,305	0
Yugoslavia	129	0	0	0	2,549	2,338	0	0	2,352	0
U. S. S. R. . . . .	...	...	...	...	(4) 10,209	(4) 5,313	(4) 0	(4) 0	27,335	2,837
Canada	4,727	4,316	83	234	53,416	30,526	631	846	46,029	3,446
United States	6,130	5,105	513	32	21,451	23,866	2,647	1,191	55,528	1,323
Argentina	5,707	5,674	—	—	17,876	15,517	—	—	40,448	—
Chile . . . . .	...	...	...	...	(2) 0	(2) 0	(2) 3	(2) 0	0	1
Uruguay . . . . .	...	...	...	...	(3) 259	(3) 0	(3) 2	(3) 215	496	283
India: by sea	9	190	704	28	1,934	4,546	2,347	57	9,569	481
" " by land . . . . .	...	...	...	...	(3) 138	(3) 72	(3) 45	(3) 82	433	196
Iraq . . . . .	...	...	...	...	(2) 378	(2) 367	(2) 0	(2) 0	1,076	1
Iran . . . . .	...	...	...	...	(2) 0	(2) 489	(2) 0	(2) 2	489	2
Manchukuo . . . . .	...	...	...	...	(3) 0	(3) 35	(3) 3	(3) 0	413	4
Syria and Lebanon	149	0	15	0	258	3	193	185	36	480
Turkey . . . . .	...	...	...	...	(1) 633	(1) 511	—	—	2,115	—
Algeria	36	432	86	30	651	3,098	629	173	4,184	700
Egypt . . . . .	...	...	...	...	(2) 1	(2) 76	(2) 0	(2) 0	436	18
French Morocco . . . . .	...	...	...	...	(1) 1,468	(1) 700	(1) 0	(1) 279	1,731	289
Tunisia . . . . .	...	...	...	...	(1) 396	(1) 1,347	(1) 7	(1) 37	2,764	40
Australia	4,485	4,842	0	0	15,367	16,324	0	0	56,017	0
<i>Importing Countries:</i>										
Germany (5)	0	0	475	1,577	0	0	15,746	10,267	0	21,123
Austria (5)	0	1	259	271	2	6	2,218	1,603	9	4,081
Belgo-Luxemb. E. U.	229	251	728	1,310	1,740	1,389	11,895	14,527	2,630	24,945
Denmark	1	5	268	357	49	150	1,581	1,799	272	3,828
Spain	—	—	—	—	—	—	—	—	—	—
Estonia	0	0	0	2	0	10	11	24	10	103
Finland	0	0	26	229	0	0	465	563	0	987
France	732	39	684	679	2,256	286	5,001	5,510	286	10,899
Greece . . . . .	...	...	...	...	(1) 0	(1) 0	(1) 2,715	(1) 3,172	0	10,920
Ireland	0	0	517	472	0	0	4,916	4,068	0	7,705
Italy	0	0	321	176	28	37	2,771	1,986	40	5,723
Latvia	0	0	103	0	0	0	295	273	0	592
Norway	0	0	178	447	0	0	1,927	1,811	0	3,246
Netherlands	1	0	950	1,084	15	15	7,969	6,557	16	12,667
Portugal . . . . .	...	...	...	...	(1) 0	(1) 0	(1) 161	(1) 31	0	1,374
United Kingdom	92	75	7,731	7,309	872	668	58,378	52,409	1,286	108,330
Sweden	20	470	40	99	31	1,043	745	601	1,425	996
Switzerland	0	0	872	764	0	2	5,822	4,572	3	8,972
Czecho-Slovakia	236	205	0	74	320	584	391	647	860	2,793
Brazil . . . . .	—	—	...	...	—	—	(3) 5,642	(3) 4,990	—	20,872
Colombia . . . . .	—	—	...	...	—	—	(4) 65	(4) 74	—	319
Peru . . . . .	...	...	...	...	(3) 0	(3) 0	(3) 644	(3) 979	0	3,003
Burma	1	0	8	6	3	2	48	60	6	127
Ceylon	—	—	1	5	—	—	33	49	—	79
China . . . . .	...	...	...	...	(1) 120	(1) 0	(1) 0	(1) 0	2	0
Chosen . . . . .	...	...	...	...	(2) 0	(2) 1	(2) 22	(2) 0	5	22
Taiwan . . . . .	—	—	...	...	—	—	(2) 0	(2) 0	—	0
Indochina . . . . .	...	...	...	...	(1) 0	(1) 0	(1) 2	(1) 0	0	1
Japan . . . . .	—	—	...	...	—	—	(3) 148	(3) 807	—	2,802
British Malaya . . . . .	...	...	...	...	(2) 1	(2) 1	(2) 5	(2) 4	2	11
Palestine . . . . .	...	...	...	...	(1) 0	(1) 17	(1) 310	(1) 129	17	573
Union of South Africa . . . . .	...	...	...	...	(2) 0	(2) 3	(2) 1,022	(2) 5	4	555
New Zealand . . . . .	...	...	...	...	(1) 0	(1) 0	(1) 400	(1) 772	0	2,717
Total	26,349	23,455	14,459	15,318	158,251	128,185	138,920	121,420	286,425	270,707

(1) Up to December 31. — (2) Up to November 30. — (3) Up to October 31. — (4) Up to September 30. — (5) From January 1, 1938 not including trade between Germany and Austria.

COUNTRIES	JANUARY				SIX MONTHS (August 1-January 31)				TWELVE MONTHS (August 1-July 31)	
	EXPORTS		IMPORTS		EXPORTS		IMPORTS		EXPORTS	IMPORTS
	1939	1938	1939	1938	1938-39	1937-38	1938-39	1937-38	1937-38	1937-38
Exporting Countries:										
Wheat Flour. — Thousand centals (1 cental = 100 lb.).										
Bulgaria	0	5	0	0	2	37	0	0	46	0
Spain	—	—	—	—	—	—	—	—	—	—
France	312	177	67	50	1,259	901	442	477	1,605	963
Hungary	40	30	0	0	448	639	0	0	958	0
Italy	73	125	14	6	899	1,055	256	75	2,308	160
Latvia	0	0	0	0	0	0	0	0	15	0
Lithuania	6	0	0	0	17	0	0	0	5	0
Poland - Danzig	88	51	0	0	484	80	0	0	322	0
Romania	0	0	0	0	0	0	0	0	1	0
Czecho-Slovakia	206	81	0	0	284	492	3	3	752	5
Yugoslavia	2	22	0	0	22	130	0	0	306	0
U. S. S. R.	—	—	—	—	(4) 292	(4) 315	(4) 15	(4) 22	949	52
Canada	744	580	11	19	4,620	3,866	80	86	7,077	172
United States	999	809	0	126	5,557	5,170	81	134	10,179	183
Argentina	155	147	—	—	953	867	—	—	1,768	—
Uruguay	—	—	—	—	(3) 86	(3) 0	(3) 0	(3) 0	225	0
Chosen	—	—	—	—	(2) 238	(2) 73	(2) 0	(2) 0	217	0
India: by sea	120	115	0	0	724	690	1	2	1,450	4
Iraq	—	—	—	—	(2) 64	(2) 49	(2) 0	(2) 0	116	1
Iran	—	—	—	—	(2) 0	(2) 0	(2) 0	(2) 0	0	0
Japan	—	—	—	—	(3) 1,616	(3) 1,156	(3) 0	(3) 11	6,168	22
Algeria	30	62	11	2	256	306	89	22	657	113
French Morocco	—	—	—	—	(1) 0	(1) 0	(1) 0	(1) 0	0	0
Tunisia	—	—	—	—	(1) 156	(1) 142	(1) 51	(1) 39	310	112
Australia	1,013	961	0	0	6,540	5,783	0	0	12,976	1
Importing Countries:										
Germany (5)	0	1	118	104	6	16	198	694	84	1,277
Austria (5)	0	0	47	31	1	8	167	181	10	368
Belgo-Luxemb. E. U.	6	7	2	0	42	52	11	28	100	35
Denmark	1	1	44	19	15	15	283	111	29	294
Estonia	0	0	0	0	0	0	0	0	0	0
Finland	0	0	21	99	0	0	308	260	0	574
Greece	—	—	—	—	(1) 0	(1) 0	(1) 16	(1) 11	0	23
Ireland	0	0	9	7	0	0	58	60	0	118
Norway	0	0	1	32	4	2	494	304	3	684
Netherlands	0	0	143	150	3	162	745	732	191	1,472
Portugal	—	—	—	—	(1) 0	(1) 0	(1) 22	(1) 23	0	43
United Kingdom	171	195	701	716	1,355	967	4,306	4,532	2,049	8,815
Sweden	0	3	0	1	2	11	4	2	18	3
Haiti	—	—	—	—	—	—	(2) 52	(2) 67	—	169
Brazil	—	—	—	—	—	—	(3) 247	(3) 259	—	857
Chile	—	—	—	—	(3) 0	(2) 0	(2) 34	(2) 9	0	44
Colombia	—	—	—	—	—	—	(4) 3	(4) 2	—	15
Peru	—	—	—	—	(3) 0	(3) 0	(3) 12	(3) 7	0	38
Burma	0	0	80	45	0	1	358	298	3	633
Ceylon	—	—	26	26	—	—	197	167	—	322
China	—	—	—	—	(1) 161	(1) 0	(1) 2,291	(1) 354	0	3,680
Netherlands Indies:	—	—	—	—	—	—	—	—	—	—
Java and Madura	—	—	—	—	—	—	(1) 579	(1) 465	—	1,093
Outer Provinces	—	—	—	—	—	—	(2) 250	(2) 235	—	644
Indochina	—	—	27	34	(1) 0	(1) 0	(2) 304	(2) 211	1	434
British Malaya	—	—	—	—	(2) 47	(2) 50	(2) 488	(2) 513	131	1,457
Manchukuo	—	—	—	—	(3) 0	(3) 115	(3) 1,730	(3) 530	202	2,897
Palestine	—	—	—	—	(1) 0	(1) 1	(1) 185	(1) 190	2	436
Syria and Lebanon	17	0	0	5	32	18	39	54	32	105
Egypt	—	—	—	—	(2) 0	(2) 19	(2) 14	(2) 16	32	85
Union of South Africa	—	—	—	—	(2) 1	(2) 4	(2) 3	(2) 4	6	11
New Zealand	—	—	—	—	(1) 0	(1) 0	(1) 0	(1) 0	0	1
Total	3,983	3,372	1,322	1,472	26,186	23,192	14,416	11,190	51,303	28,415

(1) Up to December 31. — (2) Up to November 30. — (3) Up to October 31. — (4) Up to September 30. — (5) From January 1, 1938 not including trade between Germany and Austria.

COUNTRIES	JANUARY				SIX MONTHS (August 1-January 31)				TWELVE MONTHS (August 1-July 31)	
	NET EXPORTS *		NET IMPORTS **		NET EXPORTS *		NET IMPORTS **		NET EX. *	NET IM. **
	1939	1938	1939	1938	1938-39	1937-38	1938-39	1937-38	1937-38	1937-38
Total Wheat and Flour †. — Thousand centals (1 cental = 100 lb.).										
Germany (5)	—	—	632	1,715	—	—	16,002	11,171	—	22,714
Austria (5)	—	—	322	312	—	—	2,436	1,828	—	4,549
Belgo-Luxemb. E. U.	—	—	493	1,050	—	—	10,114	13,105	—	22,228
Bulgaria	0	612	—	—	3	2,909	—	—	4,727	—
Denmark	—	—	325	377	—	—	1,888	1,777	—	3,909
Spain	—	—	—	—	—	—	—	—	—	—
Estonia	—	—	0	2	—	—	11	14	—	93
Finland	—	—	54	362	—	—	876	909	—	1,753
France	375	—	—	471	—	—	1,655	4,659	—	9,756
Greece	—	—	—	—	—	—	(1) 2,736	(1) 3,187	—	10,951
Hungary	874	281	—	—	9,228	3,336	—	—	5,331	—
Ireland	—	—	529	481	—	—	4,994	4,148	—	7,861
Italy	—	—	242	11	—	—	1,885	642	—	2,833
Latvia	0	—	—	103	—	—	295	273	—	571
Lithuania	162	0	—	—	424	0	—	—	48	—
Norway	—	—	179	489	—	—	2,581	2,214	—	4,155
Netherlands	—	—	1,139	1,284	—	—	8,943	7,301	—	14,368
Poland-Danzig	244	37	—	—	962	44	—	—	225	—
Portugal	—	—	—	—	—	—	(1) 1,189	(1) 61	—	1,431
Romania	2,564	1,004	—	—	16,414	13,501	—	—	19,307	—
United Kingdom	—	—	8,345	7,929	—	—	61,441	56,495	—	116,072
Sweden	—	373	20	—	—	455	716	—	449	—
Switzerland (6)	—	—	872	764	—	—	5,822	4,571	—	8,969
Czecho-Slovakia	510	240	—	—	305	589	—	—	—	936
Yugoslavia	132	29	—	—	2,579	2,511	—	—	2,758	—
Totals Europe	4,861	2,576	13,152	15,350	29,915	23,345	123,584	112,355	32,845	233,149
U. S. S. R.	—	—	—	—	(4) 10,579	(4) 5,704	—	—	25,694	—
Canada	5,622	4,830	—	—	58,838	34,719	—	—	51,789	—
United States	6,949	5,983	—	—	26,106	29,390	—	—	67,534	—
Haiti	—	—	—	—	—	—	(2) 70	(2) 89	—	226
Argentina	5,914	5,870	—	—	19,146	16,673	—	—	42,790	—
Brazil	—	—	—	—	—	—	(3) 5,971	(3) 5,336	—	22,015
Chile	—	—	—	—	—	—	(2) 49	(2) 12	—	39
Colombia	—	—	—	—	—	—	(4) 70	(4) 76	—	340
Peru	—	—	—	—	—	—	(3) 660	(3) 989	—	3,054
Uruguay	—	—	—	—	(3) 371	—	—	(3) 215	513	—
Burma	—	—	114	66	—	—	521	454	—	961
Ceylon	—	—	35	40	—	—	296	272	—	508
China	—	—	—	—	—	—	(1) 2,720	(1) 472	—	4,904
Chosen	—	—	—	—	(2) 295	(2) 98	—	—	257	—
Taiwan	—	—	—	—	—	—	(2) 0	(2) 0	—	0
India: by sea	—	313	536	—	551	5,408	—	—	11,017	—
„ : by land	—	—	—	—	(3) 93	—	—	(3) 10	236	—
Netherlands Indies:	—	—	—	—	—	—	—	—	—	—
Java and Madura	—	—	—	—	—	—	(1) 772	(1) 620	—	1,457
Outer Provinces	—	—	—	—	—	—	(2) 334	(2) 314	—	859
Indochina	—	—	—	—	—	—	(1) 370	(1) 235	—	579
Iraq	—	—	—	—	(2) 463	(2) 432	—	—	1,229	—
Iran	—	—	—	—	(2) 487	(2) 487	(2) 0	—	487	—
Japan	—	—	—	—	(3) 2,007	(3) 720	—	—	5,393	—
British Malaya	—	—	—	—	—	—	(2) 592	(2) 622	—	1,777
Manchukuo	—	—	—	—	—	—	(3) 2,310	(3) 519	—	3,185
Palestine	—	—	—	—	—	—	(1) 557	(1) 363	—	1,135
Syria and Lebanon	156	—	—	6	—	—	—	229	—	542
Turkey	—	—	—	—	(1) 633	(1) 511	—	—	2,115	—
Algeria	—	482	25	—	244	3,303	—	—	4,210	—
Egypt	—	—	—	—	—	(2) 79	(2) 17	—	348	—
French Morocco	—	—	—	—	(1) 1,468	(1) 421	—	—	1,442	—
Tunisia	—	—	—	—	(1) 529	(1) 1,447	—	—	2,988	—
Union of South Africa	—	—	—	—	—	—	(2) 1,025	(2) 1	—	559
Australia	5,836	6,124	—	—	24,087	24,034	—	—	73,318	—
New Zealand	—	—	—	—	—	—	(1) 400	(1) 773	—	2,686
Total	29,338	26,178	13,862	15,462	175,380	146,771	140,318	123,956	324,205	277,995

* Excess of exports over imports. — ** Excess of imports over exports.

† Flour reduced to grain on the basis of the coefficient: 1,000 centals of flour = 1,333-333 centals of grain.

(1) Up to December 31. — (2) Up to November 30. — (3) Up to October 31. — (4) Up to September 30. — (5) From January 1938 not including trade between Germany and Austria. — (6) Wheat only.

COUNTRIES	JANUARY				SIX MONTHS (August 1-January 31)				TWELVE MONTHS (August 1-July 31)	
	EXPORTS		IMPORTS		EXPORTS		IMPORTS		EXPORTS	IMPORTS
	1939	1938	1939	1938	1938-39	1937-38	1938-39	1937-38	1937-38	1937-38
<i>Exporting Countries:</i>										
	Rye. — Thousand centals (1 cental = 100 lb.).									
Bulgaria	0	40	0	0	0	107	0	0	158	0
Spain	—	—	—	—	—	—	—	—	—	—
Hungary	22	26	0	0	175	485	0	0	1,629	0
Latvia	0	0	0	0	0	0	0	0	0	0
Lithuania	201	79	0	0	1,016	79	1	0	1,084	0
Netherlands	205	163	141	56	850	992	446	666	1,617	1,308
Poland-Danzig	555	0	0	2	2,759	47	0	2	228	13
Romania	10	116	0	0	110	3,766	0	0	4,090	0
Yugoslavia	0	11	0	0	0	147	0	0	156	0
U. S. S. R. . . . .	...	...	...	...	(2) 1,428	(2) 846	(2) 0	(2) 0	7,432	0
Canada	0	12	0	5	469	223	0	29	363	35
United States	0	140	0	0	374	2,224	0	0	3,585	0
Argentina	135	7	—	—	193	46	—	—	96	—
Algeria	4	0	0	0	26	11	0	0	15	0
<i>Importing Countries:</i>										
Germany (3)	0	0	312	131	2	0	1,474	1,015	0	1,596
Austria (3)	0	1	1	394	2	10	97	2,675	15	4,131
Belgo-Luxemb. E. U.	3	34	790	169	21	70	3,651	1,019	90	2,462
Denmark	0	0	202	148	1	2	1,178	1,608	12	3,046
Estonia	0	0	0	0	120	1	182	239	102	325
Finland	0	0	0	3	0	0	250	347	0	668
France	0	0	2	0	0	0	12	11	0	17
Greece . . . . .	...	...	...	...	(1) 0	(1) 0	(1) 0	(1) 1	0	1
Italy	0	0	73	10	0	0	444	10	0	319
Norway	0	0	224	101	0	0	1,612	1,209	0	2,617
United Kingdom	0	0	0	16	2	2	80	74	3	125
Sweden	0	0	6	5	0	1	71	11	1	108
Switzerland	0	0	28	45	0	0	258	128	0	295
Czecho-Slovakia	0	0	0	239	0	2	524	1,534	3	4,148
Palestine . . . . .	—	—	...	...	—	—	(1) 71	(1) 57	—	146
French Morocco . . . . .	...	...	...	...	(1) 0	(1) 0	(1) 0	(1) 0	0	0
Total	1,135	629	1,779	1,322	7,548	9,061	10,351	10,635	21,561	21,360

(1) Up to December 31. — (2) Up to September 30. — (3) From January 1, 1938 not including trade between Germany and Austria.

COUNTRIES	JANUARY				SIX MONTHS (August 1-January 31)				TWELVE MONTHS (August 1-July 31)	
	EXPORTS		IMPORTS		EXPORTS		IMPORTS		EXPORTS	IMPORTS
	1939	1938	1939	1938	1938-39	1937-38	1938-39	1937-38	1937-38	1937-38
Barley. — Thousand centals (1 cental = 100 lb.).										
<i>Exporting Countries:</i>										
Bulgaria	0	6	0	0	0	251	0	0	256	0
Denmark	306	226	0	14	1,675	2,581	9	92	3,345	679
Spain	—	—	—	—	—	—	—	—	—	—
Hungary	11	2	0	0	59	106	0	0	170	0
Latvia	0	0	0	0	0	0	0	2	0	3
Lithuania	95	0	0	0	175	7	0	0	273	0
Poland - Danzig	838	526	0	0	3,202	2,248	0	0	4,605	0
Romania	104	137	0	0	2,575	3,779	0	0	5,107	0
Sweden	1	0	0	0	1	0	0	0	1	0
Czecho-Slovakia	179	63	0	0	742	376	0	1	1,009	1
Yugoslavia	0	7	9	3	0	111	17	3	132	11
U. S. S. R. . . . .	...	...	...	...	(4) 4,534	(4) 2,946	(4) 0	(4) 0	6,402	0
Canada	552	489	0	0	5,602	4,243	1	0	7,077	0
United States	174	590	0	0	3,918	5,339	0	446	8,747	506
Argentina	445	1,588	—	—	760	2,074	—	—	4,831	—
Chile . . . . .	...	...	—	—	(2) 281	(2) 31	—	—	1,403	—
India: by sea	1	1	6	1	35	307	26	32	476	39
Iraq . . . . .	...	...	...	...	(2) 1,398	(2) 1,937	(2) 0	(2) 1	4,150	1
Iran . . . . .	...	...	...	...	(2) 22	(2) 143	(2) 0	(2) 0	279	0
Manchukuo . . . . .	...	...	—	—	(3) 1	(3) 3	—	—	22	—
Syria and Lebanon	111	6	0	0	614	46	4	26	242	37
Turkey . . . . .	...	...	—	—	(1) 1,415	(1) 1,541	—	—	2,846	—
Algeria	2	33	47	48	160	259	101	60	462	198
Egypt . . . . .	...	...	...	...	(2) 62	(2) 76	(2) 4	(2) 0	116	1
French Morocco . . . . .	...	...	...	...	(1) 731	(1) 0	(1) 0	(1) 217	41	628
Union of South Afr. . . . .	...	...	...	...	(2) 0	(2) 0	(2) 0	(2) 0	0	0
Australia	298	517	0	0	409	784	0	0	2,568	0
<i>Importing Countries:</i>										
Germany (5)	0	0	607	831	0	0	5,097	2,998	0	7,695
Austria (5)	0	0	93	32	0	1	573	421	2	893
Belgo-Luxemb. E. U.	26	88	904	602	155	351	6,250	6,148	573	9,503
Estonia	0	0	0	3	0	0	4	16	0	94
Finland	0	0	0	0	0	0	0	2	0	2
France	18	0	121	202	27	2	812	1,223	6	1,946
Greece . . . . .	...	...	...	...	(1) 0	(1) 0	(1) 172	(1) 1	0	35
Ireland	0	0	0	145	0	14	242	270	14	384
Italy	2	0	82	91	13	3	353	489	7	981
Norway	0	0	20	20	0	0	200	206	0	281
Netherlands	164	35	213	198	713	578	2,590	2,984	677	5,504
United Kingdom	0	0	1,156	1,715	3	4	13,023	13,485	7	22,185
Switzerland	0	0	172	250	0	0	1,759	1,811	0	3,228
Burma	—	—	0	1	—	—	2	2	—	5
Ceylon	—	—	1	1	—	—	7	3	—	7
Chosen . . . . .	...	...	...	...	(2) 0	(2) 19	(2) 0	(2) 0	23	4
Indochina . . . . .	...	...	...	...	(1) 0	(1) 0	(1) 0	(1) 0	0	0
Japan . . . . .	—	—	...	...	—	—	(3) 0	(3) 20	—	54
Palestine . . . . .	...	...	...	...	(1) 6	(1) 57	(1) 157	(1) 48	58	144
Tunisia . . . . .	...	...	...	...	(1) 2	(1) 546	(1) 125	(1) 9	829	17
New Zealand . . . . .	...	...	...	...	(1) 0	(1) 0	(1) 8	(1) 11	0	288
Total	3,327	4,314	3,431	4,157	29,290	30,763	31,536	31,027	56,756	55,354

(1) Up to December 31. — (2) Up to November 30. — (3) Up to October 31. — (4) Up to September 30. — (5) From January 1, 1938 not including trade between Germany and Austria.

COUNTRIES	JANUARY				SIX MONTHS (August 1-December 31)				TWELVE MONTHS (August 1-July 31)	
	EXPORTS		IMPORTS		EXPORTS		IMPORTS		EXPORTS	IMPORTS
	1939	1938	1939	1938	1938-39	1937-38	1938-39	1937-38	1937-38	1937-38
Oats. — Thousand centals (1 cental = 100 lb.).										
<i>Exporting Countries:</i>										
Bulgaria	0	0	0	0	0	2	0	0	2	0
Hungary	0	0	0	0	0	0	0	0	0	0
Lithuania	178	0	0	0	402	0	0	0	17	0
Poland-Danzig	0	24	0	0	43	24	0	0	186	0
Romania . . . . .	...	...	...	...	(1)	6 (1)	0 (1)	0	6	0
Czecho-Slovakia	377	80	0	0	498	406	0	1	864	3
Yugoslavia	0	2	0	0	0	114	0	0	114	1
U. S. S. R. . . . .	...	...	...	...	(4)	19 (4)	5 (4)	0 (4)	61	0
Canada	290	187	151	170	1,690	869	933	2,024	1,624	4,014
United States	94	158	25	1	1,153	2,287	26	2	3,797	3
Argentina	495	2,027	—	—	2,458	4,644	—	—	9,065	—
Chile . . . . .	...	...	...	...	(3)	146 (3)	252 (3)	0 (3)	1,177	0
Chosen . . . . .	...	...	...	...	(2)	0 (2)	2 (2)	0 (2)	118	2
India: by sea	2	2	—	—	13	11	—	—	22	—
French Morocco . . . . .	...	...	...	...	(1)	327 (1)	120 (1)	0 (1)	440	3
Tunisia . . . . .	...	...	...	...	(1)	65 (1)	209 (1)	0 (1)	302	0
Union of South Afr. . . . .	...	...	...	...	(2)	1 (2)	7 (2)	0 (2)	11	0
Australia	2	14	0	0	17	48	0	1	86	2
New Zealand . . . . .	...	...	...	...	(1)	0 (1)	1 (1)	2 (1)	9	14
<i>Importing Countries:</i>										
Germany (5)	0	0	123	164	0	0	1,249	455	0	3,314
Austria (5)	0	0	102	31	0	0	308	196	1	417
Belgo-Luxemb. E. U.	0	1	76	89	1	2	194	278	2	1,124
Denmark	68	41	0	104	147	166	99	252	223	1,114
Estonia	0	0	3	0	0	0	3	0	0	73
Finland	0	0	0	21	0	0	20	70	0	144
France	0	0	7	9	6	4	139	296	7	493
Greece . . . . .	...	...	...	...	(1)	0 (1)	0 (1)	22	0	22
Ireland	0	0	0	0	3	0	0	0	30	0
Italy	0	0	7	39	5	20	32	198	65	369
Latvia	6	0	0	0	7	0	0	0	0	0
Norway	0	0	0	0	0	0	0	0	0	9
Netherlands	78	68	27	148	185	385	437	589	784	1,524
United Kingdom	2	2	189	77	6	16	1,081	549	28	1,324
Sweden	6	13	0	5	6	13	26	165	38	386
Switzerland	0	0	307	420	0	0	1,722	2,017	0	4,678
Uruguay . . . . .	...	...	...	...	(3)	0 (3)	0 (3)	0 (3)	15	0
Ceylon	—	—	1	2	—	—	8	7	—	15
Indochina . . . . .	...	...	...	...	(1)	0 (1)	0 (1)	1	0	2
Japan . . . . .	—	—	...	...	—	—	(3)	0 (3)	—	1
Syria and Lebanon	0	0	0	0	2	9	2	0	9	1
Algeria	1	0	26	16	11	3	392	273	16	473
Egypt . . . . .	—	—	...	...	—	—	(2)	0 (2)	—	0
Total	1,599	2,619	1,044	1,296	7,202	9,625	6,673	7,408	19,112	19,525

(1) Up to December 31. — (2) Up to November 30. — (3) Up to October 31. — (4) Up to September 30. — (5) From January 1, 1938 not including trade between Germany and Austria.

COUNTRIES	JANUARY				THREE MONTHS (November 1-January 31)				TWELVE MONTHS (Nov. 1-Oct. 31)	
	EXPORTS		IMPORTS		EXPORTS		IMPORTS		EXPORTS	IMPORTS
	1939	1938	1939	1938	1938-39	1937-38	1938-39	1937-38	1937-38	1937-38
Maize. — Thousand centals (1 cental = 100 lb.).										
<i>Exporting Countries:</i>										
Bulgaria	0	9	0	0	0	110	0	0	1,394	0
Hungary	135	638	0	0	136	2,205	0	0	4,223	226
Romania	897	5	0	0	3,763	100	0	0	2,788	0
Yugoslavia	154	711	0	0	442	4,534	0	0	13,850	0
U. S. S. R. . . . .	...	...	...	...	...	...	...	...	(3) 0	(3) 0
United States	3,927	7,423	21	22	9,355	10,544	66	206	80,178	371
Haiti . . . . .	...	...	...	...	(2) 0	(2) 1	...	...	5	...
Dominican Republic . . . . .	...	...	...	...	(1) 69	(1) 54	...	...	264	...
Argentina	3,706	2,105	...	...	16,180	22,478	...	...	66,057	...
Brazil . . . . .	...	...	...	...	...	...	...	...	2,678	...
Burma	15	9	...	...	28	17	...	...	276	...
China . . . . .	...	...	...	...	(1) 19	(1) 0	...	...	0	...
India: by sea	0	0	...	...	1	1	...	...	2	...
Netherlands Indies:	...	...	...	...	(1) 66	(1) 38	...	...	1,209	...
Java and Madura . . . . .	...	...	...	...	(1) 52	(1) 79	...	...	1,022	...
Outer Provinces . . . . .	...	...	...	...	...	...	...	...	12,554	...
Indochina	388	507	...	...	3,268	3,669	...	...	20	...
Iraq . . . . .	...	...	...	...	(2) 0	(2) 0	...	...	5,146	...
Manchukuo . . . . .	...	...	...	...	...	...	...	...	18	1
Syria and Lebanon	14	1	0	0	18	10	0	0	23	0
Turkey . . . . .	...	...	...	...	(1) 1	(1) 1	(1) 0	(2) 0	7	114
Egypt . . . . .	...	...	...	...	(2) 1	(2) 0	(2) 0	(2) 0	1,180	0
Madagascar . . . . .	...	...	...	...	(2) 8	(2) 9	(2) 0	(2) 0	0	479
French Morocco . . . . .	...	...	...	...	(1) 0	(1) 0	(1) 0	(1) 30	6,593	9
Union of South Afr. . . . .	...	...	...	...	(1) 1,229	(1) 3,404	(2) 2	(2) 0	...	...
<i>Importing Countries:</i>										
Germany (4)	0	0	534	3,227	0	0	2,928	17,256	0	53,440
Austria (4)	0	0	455	545	0	0	1,716	1,740	0	6,746
Belgo-Luxemb. E. U.	17	39	1,226	2,234	105	97	3,285	5,617	639	14,891
Denmark	0	2	208	1,491	1	6	417	3,268	253	8,396
Spain . . . . .	...	...	...	...	...	...	...	...	...	...
Estonia	0	0	0	62	0	0	0	62	0	62
Finland	0	0	0	104	0	0	503	443	0	1,497
France	0	1	1,722	1,487	3	4	5,340	6,324	14	16,804
Greece . . . . .	...	...	...	...	(1) 0	(1) 0	(1) 245	(1) 18	0	924
Ireland	0	0	845	711	0	0	2,323	1,846	0	7,616
Italy	4	0	107	52	8	0	371	240	2	1,137
Latvia	0	0	0	0	0	0	0	0	0	0
Norway	0	0	374	395	0	0	788	1,076	5	3,536
Netherlands	0	0	1,484	2,721	0	1	4,611	6,719	8	21,062
Poland-Danzig	0	0	0	5	0	0	0	47	0	60
Portugal . . . . .	...	...	...	...	(1) 0	(1) 0	(1) 296	(1) 183	0	1,223
United Kingdom	252	171	7,308	6,566	720	563	18,848	24,147	2,790	71,039
Sweden	0	0	76	306	0	0	216	805	0	4,166
Switzerland	0	0	135	188	0	0	578	644	0	2,350
Czecho-Slovakia	0	0	78	23	0	0	468	228	198	1,072
Canada	1	1	447	325	1	2	2,292	1,571	2	3,811
Peru . . . . .	...	...	...	...	...	...	...	...	2	3
Chosen . . . . .	...	...	...	...	(2) ...	3 ...	1 (2) ...	(2) ...	102	22
Japan . . . . .	...	...	...	...	...	...	...	...	...	5,451
Palestine . . . . .	...	...	...	...	(1) 0	(1) 3	(1) 30	(1) 13	29	127
Algeria	14	0	17	10	14	0	93	23	8	41
Tunisia . . . . .	...	...	...	...	(1) 0	(1) 0	(1) 133	(1) 137	0	222
Australia	0	0	0	26	0	0	0	26	158	27
New Zealand . . . . .	...	...	...	...	(1) 0	(1) 0	(1) 0	(1) 0	0	2
Total	9,524	11,621	15,037	20,500	35,491	47,931	45,549	72,669	203,697	226,927

(1) Up to December 31. — (2) Up to November 30. — (3) Up to September 30. — (4) From January 1, 1938 not including trade between Germany and Austria.

COUNTRIES	JANUARY				TWELVE MONTHS (January 1-December 31)				TWELVE MONTHS (January 1-Dec. 31)	
	EXPORTS		IMPORTS		EXPORTS		IMPORTS		EXPORTS	IMPORTS
	1939	1938	1939	1938	1938	1937	1938	1937	1937	1937
Rice. — Thousand centals (1 cental = 100 lb.).										
<i>Exporting Countries:</i>										
Spain	—	—	—	—	—	—	—	—	—	—
Italy	282	196	—	0	3,496	3,510	—	5	20	—
United States	311	450	47	56	3,232	2,066	581	1,873	—	—
Brazil	—	—	—	—	(2) 1,028	(2) 611	—	—	—	—
Burma	6,067	3,861	3	2	63,090	(4) 43,848	—	27	21	690
incl. trade with										
India	(4,233)	(2,090)	—	—	(32,162)	(19,730)	—	—	—	—
Chosen	—	—	—	—	(1) 917	(1) 101	(1) 0	(1) 1	139	1
Taiwan	—	—	—	—	(1) 219	(1) 2	(1) 0	(1) 0	2	0
Indochina	1,778	1,364	—	—	22,329	31,195	263	48	—	—
Iraq	—	—	—	—	(1) 88	(1) 7	(1) 0	(1) 0	7	1
Iran	—	—	—	—	(2) 705	(2) 851	(2) 11	(2) 2	851	2
Siam	2,718	2,535	—	—	31,940	20,989	—	—	—	—
Egypt	—	—	—	—	(1) 959	(1) 3,060	(1) 201	(1) 2	3,324	3
Madagascar	—	—	—	—	(1) 233	(1) 72	(1) 0	(1) 15	88	15
Australia	282	14	6	3	280	520	27	80	—	—
<i>Importing Countries:</i>										
Germany (5)	42	21	485	414	503	596	6,077	4,862	—	—
Austria (5)	0	0	34	34	0	0	474	793	—	—
Belgo-Luxemb. E. U.	38	22	98	92	328	548	1,565	1,769	—	—
Denmark	0	0	17	30	3	3	309	149	—	—
Estonia	—	—	1	2	—	—	24	25	—	—
Finland	—	—	13	23	—	—	297	338	—	—
France	11	21	329	940	386	696	13,238	16,710	—	—
Greece	—	—	—	—	0	0	625	674	—	—
Hungary	0	0	65	2	0	0	397	515	—	—
Ireland	0	0	7	9	0	0	77	72	—	—
Latvia	0	0	3	2	0	0	22	22	—	—
Lithuania	0	0	0	0	0	0	13	11	—	—
Norway	1	0	7	1	0	1	100	120	—	—
Netherlands	125	145	167	119	2,059	3,002	3,800	5,128	—	—
Poland-Danzig	1	19	0	0	129	103	1,064	1,052	—	—
Portugal	—	—	—	—	1	0	69	82	—	—
Romania	—	—	—	—	—	—	(1) 420	(1) 404	—	536
United Kingdom	10	4	122	128	—	162	3,013	2,588	—	—
Sweden	—	—	10	6	98	—	263	309	—	—
Switzerland	0	0	39	24	0	0	505	397	—	—
Czecho-Slovakia	0	0	80	37	0	0	1,052	1,320	—	—
Yugoslavia	0	0	52	30	0	0	497	507	—	—
U. S. S. R.	—	—	—	—	(3) 24	(3) 16	(3) 881	(3) 758	17	789
Canada	0	0	40	35	7	34	592	766	—	—
Haiti	—	—	—	—	—	—	(1) 17	(1) 30	—	32
Argentina	0	0	—	—	1	4	1,108	1,080	—	—
Chile	—	—	—	—	—	—	(1) 232	(1) 371	—	392
Colombia	—	—	—	—	—	—	(1) 217	(1) 188	—	256
Peru	—	—	—	—	(2) 0	(2) 0	(2) 519	(2) 224	5	244
Ceylon	0	0	1,078	914	2	1	11,922	11,692	—	—
China	—	—	—	—	10	472	8,953	7,622	—	—
India: by sea (6)	407	404	2,670	1,507	5,923	15,543	24,295	20,914	—	—
incl. trade with										
Burma	—	—	(2,661)	(1,505)	—	—	(24,288)	(20,846)	—	—
India: by land (6)	—	—	—	—	(2) 385	(2) 394	(2) 1,457	(2) 1,354	485	1,580
Netherlands Indies:										
Java and Madura	—	—	—	—	176	378	496	189	—	—
Outer Provinces	—	—	—	—	189	260	(1) 6,141	(1) 3,115	—	3,702
Japan	—	—	—	—	(2) 110	(2) 150	(2) 368	(2) 649	219	738
British Malaya	—	—	—	—	(2) 4,076	(2) 2,660	(2) 17,252	(2) 14,685	3,106	16,073
Manchukuo	—	—	—	—	(2) 302	(2) 59	(2) 1,051	(2) 1,540	76	1,598
Palestine	—	—	—	—	119	105	495	443	—	—
Syria and Lebanon	0	0	34	24	1	0	384	415	—	—
Turkey	—	—	—	—	—	—	0	0	—	—
Algeria	57	0	13	14	65	59	1,089	838	—	—
French Morocco	—	—	—	—	—	—	236	621	—	—
Tunisia	—	—	—	—	1	0	502	468	—	—
Union of South Afr.	—	—	—	—	(1) 0	(1) 0	(1) 1,206	(1) 1,287	0	1,410
New Zealand	—	—	—	—	0	1	64	73	—	—
Total	11,869	9,056	5,420	4,448	143,414	132,082	114,493	109,211	—	—

(1) Up to November 30. — (2) Up to October 31. — (3) Up to September 30. — (4) From April 1, 1937. — (5) From January 1, 1938 not including trade between Germany and Austria. — (6) From April 1, 1937, the Indian statistics include the trade of India with Burma, and exclude the direct trade of Burma with foreign countries.

COUNTRIES	JANUARY				TWELVE MONTHS (January 1-December 31)				TWELVE MONTHS (January 1-Dec. 31)	
	EXPORTS		IMPORTS		EXPORTS		IMPORTS		EXPORTS	IMPORTS
	1939	1938	1939	1938	1938	1937	1938	1937	1937	1937
Linseed. — Thousand centals (1 cental = 100 lb.)										
<i>Exporting Countries:</i>										
Latvia	22	22	9	4	74	82	18	41	—	—
Lithuania	48	15	0	0	125	456	0	0	—	—
Romania . . . . .	...	...	...	...	(1) 0	(1) 7	(1) 5	(1) 1	7	1
Argentina	3,605	4,026	—	—	27,986	39,729	—	—	—	—
Uruguay . . . . .	...	...	—	—	(2) 1,330	(2) 1,512	—	—	1,629	—
China . . . . .	...	...	—	—	160	269	—	—	—	—
India: by sea (4) . .	510	59	0	0	6,397	4,867	1	0	—	—
„ : by land (4) . .	—	—	...	...	—	—	(2) 273	(2) 231	—	244
Iraq . . . . .	...	...	—	—	(1) 69	(1) 51	—	—	51	—
Egypt . . . . .	...	...	...	...	(1) 2	(1) 14	(1) 6	(1) 1	17	1
French Morocco . .	...	...	—	—	127	242	—	—	—	—
Tunisia . . . . .	...	...	...	...	0	2	0	1	—	—
New Zealand . . . .	...	...	...	...	0	7	0	0	—	—
<i>Importing Countries:</i>										
Germany (5)	0	0	214	208	0	0	3,418	3,976	—	—
Austria (5)	0	0	0	0	0	0	4	14	—	—
Belgo-Luxemb. E. U.	6	7	369	235	93	82	1,889	2,301	—	—
Denmark	0	0	41	16	1	0	372	501	—	—
Spain	—	—	—	—	—	—	—	—	—	—
Estonia	0	3	0	0	5	13	0	0	—	—
Finland	0	0	10	8	0	0	177	162	—	—
France	0	0	338	381	2	2	4,480	6,041	—	—
Greece . . . . .	...	...	...	...	0	0	75	117	—	—
Hungary	0	0	0	0	0	1	65	19	—	—
Ireland	0	0	9	13	0	0	139	110	—	—
Italy	0	0	104	138	0	0	1,160	1,783	—	—
Norway	0	0	45	31	0	0	463	534	—	—
Netherlands	24	19	530	488	124	132	6,572	7,068	—	—
Poland-Danzig . . .	0	0	0	0	0	0	0	0	—	—
United Kingdom . .	0	0	488	231	0	0	6,191	6,428	—	—
Sweden	—	—	62	13	—	—	1,074	1,166	—	—
Czecho-Slovakia . .	0	0	26	20	0	0	385	603	—	—
Yugoslavia	0	0	23	10	0	0	216	200	—	—
Canada	4	2	22	23	7	7	399	678	—	—
United States . . .	—	—	1,182	816	—	—	8,604	15,698	—	—
Burma	0	0	0	0	0 (3)	0	0 (3)	0	—	—
Japan . . . . .	...	...	...	...	(2) 2	(2) 0	(2) 171	(2) 145	0	178
Palestine . . . . .	—	—	...	...	—	—	14	25	—	—
Algeria	0	0	0	0	0	1	1	29	—	—
Australia	0	0	22	95	0	0	725	787	—	—
Total	4,219	4,153	3,494	2,730	36,504	47,476	36,897	48,660	—	—

(1) Up to November 30. — (2) Up to October 31. — (3) From April 1, 1937. — (4) From April 1, 1937, the Indian statistics include the trade of India with Burma, and exclude the direct trade of Burma with foreign countries. — (5) From January 1, 1938 not including trade between Germany and Austria.

COUNTRIES	JANUARY				SIX MONTHS (August 1-January 31)				TWELVE MONTHS (August 1-July 31)	
	EXPORTS		IMPORTS		EXPORTS		IMPORTS		EXPORTS	IMPORTS
	1937	1938	1939	1938	1938-39	1937-38	1938-39	1937-38	1937-38	1937-38
Cotton. — Thousand centals (1 cental = 100 lb.).										
<i>Exporting Countries:</i>										
United States . . .	1,516	3,422	61	32	11,601	20,531	387	232	29,884	795
Haiti . . .	...	...	—	—	(2) 2	(2) 9	—	—	105	—
Dominican Republic . . .	...	...	—	—	(1) 1	(1) 0	—	—	3	—
Argentina . . .	0	0	—	—	329	70	—	—	234	—
Brazil . . .	...	...	—	—	(3) 1,648	(3) 1,377	—	—	5,481	—
Peru . . .	...	...	—	—	(3) 586	(3) 673	—	—	1,489	—
Burma . . .	33	74	0	0	180	237	0	0	436	0
China . . .	...	...	...	...	(1) 1,148	(1) 92	(1) 225	(1) 40	1,955	181
India: by sea . . .	1,108	793	116	436	5,017	2,697	723	1,293	8,252	3,132
Netherlands Indies:										
Java and Madura . . .	...	...	—	—	(1) 5	(1) 6	—	—	11	—
Outer provinces . . .	...	...	—	—	(1) 7	(1) 11	—	—	49	—
Iraq . . .	...	...	...	...	(2) 24	(2) 31	(2) 1	(2) 2	85	5
Iran . . .	...	...	...	...	(2) 49	(2) 75	(2) 0	(2) 0	415	0
Syria and Lebanon . . .	25	8	0	0	34	26	0	0	53	0
Turkey . . .	...	...	—	—	(1) 258	(1) 93	—	—	479	—
Egypt . . .	...	...	—	—	(2) 2,422	(2) 2,986	—	—	8,567	—
French Morocco . . .	...	...	...	...	(1) 0	(1) 0	(1) 0	(1) 0	0	1
<i>Importing Countries:</i>										
Germany (5) . . .	0	0	476	711	0	0	3,245	3,792	0	6,914
Austria (5) . . .	0	0	54	74	0	0	434	438	0	832
Belgo-Luxemb. E. U. . .	56	66	184	288	412	417	1,220	1,323	841	2,714
Bulgaria . . .	0	0	20	17	0	0	136	127	0	258
Denmark . . .	—	—	22	28	—	—	100	104	—	190
Spain . . .	—	—	—	—	—	—	—	—	—	—
Estonia . . .	0	0	13	11	0	0	74	76	0	133
Finland . . .	0	0	27	31	0	0	200	217	1	324
France . . .	26	57	609	1,100	156	204	3,289	3,840	386	6,773
Greece . . .	...	...	...	...	(1) 0	(1) 0	(1) 16	(1) 26	0	66
Hungary . . .	0	0	67	65	0	0	330	275	0	500
Italy . . .	0	0	190	297	0	0	1,497	1,850	0	3,688
Latvia . . .	0	0	17	9	0	0	55	48	0	106
Lithuania . . .	0	0	6	4	0	0	27	28	0	55
Norway . . .	0	0	9	6	0	0	54	47	0	67
Netherlands . . .	2	1	122	154	8	4	638	694	12	1,198
Poland - Danzig . . .	0	0	131	138	1	1	850	896	2	1,772
Portugal . . .	—	—	...	...	—	—	(1) 261	(1) 293	—	645
Romania . . .	...	...	...	...	(2) 0	(2) 0	(2) 173	(2) 171	0	440
United Kingdom . . .	50	24	904	1,487	255	262	5,331	9,082	499	15,294
Sweden . . .	—	—	65	62	—	—	471	368	—	711
Switzerland . . .	0	0	50	91	0	2	291	424	3	718
Czecho-Slovakia . . .	0	3	93	141	6	25	605	1,075	45	1,982
Yugoslavia . . .	0	0	74	37	0	1	321	272	1	482
U. S. S. R. . . .	...	...	...	...	(4) 0	(4) 211	(4) 321	(4) 52	420	501
Canada . . .	—	—	75	120	—	—	711	799	—	1,400
Colombia . . .	—	—	...	...	—	—	(4) 13	(4) 13	—	91
Ceylon . . .	0	0	1	1	0	0	8	9	0	20
Chosen . . .	...	...	...	...	(2) 0	(2) 0	(2) 86	(2) 9	0	414
Taiwan . . .	—	—	...	...	—	—	(2) 0	(2) 0	—	3
Indochina . . .	...	...	...	...	(1) 3	(1) 5	(1) 30	(1) 21	8	219
Japan . . .	...	...	...	...	(3) 0	(3) 90	(3) 3,193	(3) 2,514	106	10,028
Manchukuo . . .	...	...	...	...	(3) 0	(3) 0	(3) 308	(3) 149	0	788
Palestine . . .	...	...	...	...	(1) 0	(1) 0	(1) 5	(1) 7	0	15
Algeria . . .	0	0	0	0	0	0	3	2	5	6
Union of South Afr. . .	...	...	...	...	(2) 3	(2) 4	(2) 5	(2) 11	5	28
Australia . . .	0	0	10	23	0	0	69	99	0	151
Total . . .	2,816	4,448	3,396	5,363	24,155	30,140	25,387	30,717	59,832	63,640

(1) Up to December 31. — (2) Up to November 30. — (3) Up to October 31. — (4) Up to September 30. — (5) From January 1, 1938 not including trade between Germany and Austria.

COUNTRIES	JANUARY				FIVE MONTHS (September 1-January 31)				TWELVE MONTHS (Sept. 1-Aug. 31)	
	EXPORTS		IMPORTS		EXPORTS		IMPORTS		EXPORTS	IMPORTS
	1939	1938	1939	1938	1938-39	1937-38	1938-39	1937-38	1937-38	1937-38
Wool. — Thousand lb.										
<i>Exporting Countries:</i>										
Ireland	1,082	452	75	71	6,638	3,040	351	333	9,370	734
Argentina	41,473	19,041	—	—	129,176	52,318	—	—	231,771	—
Chile	4,504	3,274	—	—	24,198	15,282	—	—	40,803	—
Peru	—	—	—	—	(2) 311	(2) 60	(2) 251	(2) 148	21,089	1,098
Uruguay	—	—	—	—	(3) 1,671	(3) 1,916	—	—	11,830	—
Burma	—	—	—	—	(3) 11,696	(3) 3,721	—	—	83,095	—
China	—	—	—	—	(3) 2,824	(3) 425	—	—	10,121	—
India: by sea	—	—	—	—	(3) 106	77	—	—	148	2
" by land	22	0	0	0	(1) 4,187	(1) 4,533	—	0	8,735	—
Iraq	4,698	2,522	772	511	34,681	16,682	2,771	2,136	40,528	8,049
Iran	—	—	—	—	—	—	(3) 2,335	(3) 1,940	0	10,856
Manchukuo	—	—	—	—	(1) 5,199	(1) 2,974	(1) 4	13	6,041	637
Palestine	—	—	—	—	(2) 712	(2) 1,332	—	—	6,074	—
Syria and Lebanon	—	—	—	—	(3) 498	(3) 2,870	(3) 0	(3) 146	6,171	697
Turkey	2,053	192	4	0	(1) 44	(1) 77	(1) 11	(1) 29	203	97
Algeria	—	—	—	—	4,367	3,642	181	146	4,941	192
Egypt	—	—	—	—	9,288	7,804	—	—	12,097	—
French Morocco	961	922	95	88	7,654	7,749	946	483	21,828	1,321
Tunisia	—	—	—	—	(1) 1,373	(1) 1,030	(1) 110	(1) 9	2,491	104
Un. of S. Africa	—	—	—	—	(1) 3,847	(1) 3,036	(1) 9	(1) 9	13,761	60
Australia	—	—	—	—	(1) 820	(1) 1,160	(1) 35	(1) 527	2,288	1,016
New Zealand	—	—	—	—	(1) 64,587	(1) 74,946	(2) 425	(2) 7	210,461	2,066
(a)	57,129	20,768	2,648	2,544	(1) 1,916	(1) 1,711	(2) 368	—	6,989	—
(b)	3,893	2,233	18	29	423,423	330,130	5,953	3,452	732,887	13,481
(a)	36,500	35,305	—	—	30,889	21,288	152	42	54,545	403
(b)	3,294	2,308	—	—	69,569	55,947	(1) 46	(1) 24	212,471	99
(a)	—	—	—	—	13,444	7,703	(1) 4	(1) 2	41,731	2
(b)	—	—	—	—	—	—	—	—	—	—
<i>Importing Countries:</i>										
Germany (s)	0	0	20,018	23,173	4	4	61,284	69,201	7	279,904
(a)	0	2	2,083	2,518	0	93	13,766	14,006	121	30,713
(b)	0	0	2,189	1,243	31	44	8,753	5,128	64	19,191
Austria (s)	6,671	2,981	35,653	16,934	21,956	20,505	90,851	64,069	49,520	204,127
Belgo-Luxemb.	2,070	1,872	408	280	12,741	9,956	2,083	1,892	25,792	5,349
Econ. Un.	0	0	101	123	0	0	454	414	0	1,409
Bulgaria	15	20	377	421	430	284	2,868	1,911	562	6,455
Denmark	—	—	—	—	—	—	—	—	—	—
Spain	0	0	77	62	—	—	333	240	0	604
Estonia	0	2	500	463	24	97	2,588	2,282	143	5,578
Finland	5,450	3,891	48,065	29,374	24,800	21,963	155,717	114,138	48,054	367,230
France	—	—	—	—	(1) 617	(1) 833	(1) 700	(1) 2,315	1,733	5,706
Greece	130	0	410	75	280	187	1,177	280	408	1,237
Hungary	0	0	6,191	5,494	82	93	29,562	26,802	110	69,620
Italy	24	68	271	240	575	276	1,790	1,755	1,021	4,193
Latvia	0	0	112	163	0	0	750	963	0	1,989
Lithuania	0	0	86	44	0	0	432	397	0	888
Norway	137	121	212	132	754	734	1,168	880	1,605	1,806
Netherlands	117	73	871	637	483	1,135	3,759	1,682	2,174	7,253
(a)	22	46	895	331	121	194	4,594	1,865	516	7,606
(b)	4	0	3,792	2,895	4	4	19,185	12,278	53	44,095
Poland - Danzig	—	—	—	—	(1) 395	(1) 597	(1) 1,074	(1) 267	957	2,961
Portugal	—	—	—	—	(2) 18	(2) 53	(2) 353	(2) 743	273	1,898
Romania	20,410	17,851	123,869	83,370	99,543	77,731	357,399	274,900	278,376	843,721
United Kingdom	—	—	2,127	1,510	—	—	10,882	6,870	—	17,163
Sweden	57	11	1,338	1,878	123	84	5,827	4,328	249	13,373
Switzerland	88	26	1,638	1,931	324	320	6,296	7,106	626	30,675
Czecho-Slovakia	20	33	1,565	260	240	1,010	5,960	1,797	1,380	7,639
Yugoslavia	—	—	—	—	(4) 0	(4) 0	(4) 3,245	(4) 3,880	0	53,101
U. S. S. R.	—	—	—	—	(4) 0	(4) 0	(4) 763	(4) 1,023	0	13,907
Canada	194	331	1,281	860	1,490	1,797	5,355	4,570	4,431	15,161
United States	7	2	21,940	4,782	152	44	84,060	52,084	1,237	89,748
Japan	—	—	—	—	(3) 0	(3) 4	(3) 14,740	(3) 3,342	4	102,703
Total	191,025	114,347	279,681	181,536	1,018,305	759,540	912,320	692,854	2,211,885	2,298,017

(a) Unwashed wool. — (b) Washed wool.

(1) Up to December 31. — (2) Up to November 30. — (3) Up to October 31. — (4) Up to September 30. — (5) From January 1, 1938, not including trade between Germany and Austria.

COUNTRIES	JANUARY				TWELVE MONTHS (January 1-December 31)				TWELVE MONTHS (January 1-Dec. 31)	
	EXPORTS		IMPORTS		EXPORTS		IMPORTS		EXPORTS	IMPORTS
	1939	1938	1939	1938	1938	1937	1938	1937	1937	1937
Butter. — Thousand lb.										
<i>Exporting Countries:</i>										
Bulgaria	4	0	0	0	53	31	0	0	—	—
Denmark	22,007	23,116	0	0	348,433	337,304	0	18	—	—
Estonia	1,788	1,442	0	0	32,479	29,057	0	0	—	—
Finland	2,317	2,097	0	0	37,763	30,733	0	0	—	—
France	461	340	46	101	6,442	6,629	1,340	1,495	—	—
Hungary	395	1,085	0	0	7,760	13,122	0	0	—	—
Ireland	198	708	11	0	42,278	42,552	644	1,464	—	—
Latvia	2,976	2,555	0	0	51,460	42,353	0	0	—	—
Lithuania	1,021	1,276	0	0	38,387	33,197	0	0	—	—
Norway	42	0	0	0	1,797	443	0	0	—	—
Netherlands	7,238	5,752	0	2	112,141	118,629	7	99	—	—
Poland-Danzig	1,616	2,566	0	0	29,086	17,877	0	0	—	—
Romania . . . . .	...	...	...	...	(1) 256	(1) 214	(1) 0	(1) 31	214	31
Sweden	3,080	5,205	0	0	62,953	51,886	2	2	—	—
Czecho-Slovakia	0	388	196	0	1,773	1,587	2,266	1,676	—	—
Yugoslavia	2	0	—	—	196	225	—	—	—	—
U. S. S. R. . . . .	...	...	...	...	(3) 351	(3) 28,587	(3) 611	(3) 51	32,236	101
Canada	1,362	84	0	150	3,821	4,096	5,232	66	—	—
Argentina	1,870	1,078	—	—	16,156	19,361	—	—	—	—
Chile . . . . .	...	...	...	...	(1) 4	(1) 11	(1) 0	(1) 0	11	0
Syria and Lebanon	130	24	7	11	1,089	362	64	170	—	—
Turkey . . . . .	...	...	—	—	4	9	—	—	—	—
Union of South Afr. . . . .	...	...	...	...	(1) 3,093	(1) 7,180	(1) 0	(1) 1,693	7,205	1,806
Australia	23,978	27,692	0	0	229,407	182,916	0	0	—	—
New Zealand	32,662	45,645	...	...	293,233	343,325	9	0	—	—
<i>Importing Countries:</i>										
Germany (5)	0	0	14,793	19,742	0	0	203,465	191,439	—	—
Austria (5)	0	1,052	26	0	2,606	7,637	165	11	—	—
Belgo-Luxemb. E. U.	2	2	1,323	717	51	44	2,540	4,969	—	—
Spain	—	—	—	—	—	—	—	—	—	—
Greece	—	—	—	—	—	—	1,151	688	—	—
Italy	97	234	29	31	1,883	1,523	463	5,115	—	—
Portugal . . . . .	...	...	...	...	115	95	0	26	—	—
United Kingdom	1,755	875	88,254	75,487	10,174	14,204	1,065,630	1,053,683	—	—
Switzerland	2	2	9	2	11	7	340	5,624	—	—
United States	126	62	99	313	1,960	800	1,623	11,111	—	—
Peru . . . . .	...	...	...	...	(2) 194	(2) 269	(2) 256	(2) 159	278	203
Burma . . . . .	...	...	79	57	—	—	668	(4) 520	—	—
Ceylon . . . . .	...	...	95	57	—	—	858	811	—	—
China . . . . .	...	...	...	...	...	...	531	825	—	—
India: by sea (6)	57	712	110	86	5,463	4,908	966	899	—	—
" by land (6) . . . . .	—	—	...	...	—	—	(3) 5,218	(3) 4,993	—	5,699
Netherlands Indies:	—	—	...	...	—	—	6,978	7,255	—	—
Java and Madura . . . . .	—	—	...	...	—	—	(1) 2,266	(1) 2,544	—	2,753
Outer Provinces . . . . .	—	—	...	...	—	—	763	915	—	—
Indochina . . . . .	...	...	...	...	(1) 2	(1) 4	(1) 26	(1) 20	11	22
Iraq . . . . .	...	...	...	...	(1) 0	(1) 9	(1) 0	(1) 0	0	2
Iran . . . . .	...	...	...	...	(1) 20	(1) 0	(1) 0	(1) 0	37	602
Japan . . . . .	...	...	...	...	(2) 326	(2) 13	(2) 0	(2) 556	624	4,129
British Malaya . . . . .	...	...	...	...	(2) 560	(2) 569	(2) 4,378	(2) 3,922	—	—
Palestine . . . . .	...	...	...	...	—	—	4,493	5,340	—	—
Algeria	0	0	364	313	11	15	4,332	4,114	—	—
Egypt . . . . .	...	...	...	...	(1) 293	(1) 13	(1) 1,248	(1) 1,140	13	1,276
French Morocco . . . . .	...	...	...	...	—	—	1,953	2,692	—	—
Tunisia . . . . .	...	...	...	...	2	2	1,475	1,651	—	—
Total	105,182	123,992	105,441	97,069	1,344,086	1,341,798	1,321,961	1,317,787	—	—

(1) Up to November 30. — (2) Up to October 31. — (3) Up to September 30. — (4) From April 1, 1937. — (5) From January 1, 1938 not including trade between Germany and Austria. — (6) From April 1, 1937, the Indian statistics include the trade of India with Burma, and exclude the direct trade of Burma with foreign countries.

COUNTRIES	JANUARY				TWELVE MONTHS (January 1-December 31)				TWELVE MONTHS (Jan. 1-Dec. 31)	
	EXPORTS		IMPORTS		EXPORTS		IMPORTS		EXPORTS	IMPORTS
	1939	1938	1939	1938	1938	1937	1938	1937	1937	1937
Cheese. — Thousand lb.										
<i>Exporting Countries:</i>										
Bulgaria	150	392	0	0	3,660	3,027	0	0	—	—
Denmark	1,590	1,817	2	0	20,408	20,668	29	29	—	—
Estonia	77	33	0	0	507	613	2	2	—	—
Finland	952	1,082	0	2	14,930	14,575	35	33	—	—
Hungary	7	18	0	0	787	977	2	2	—	—
Ireland	152	181	2	4	2,262	1,872	40	44	—	—
Italy	3,078	3,911	836	811	53,275	52,680	10,221	9,451	—	—
Latvia	0	46	0	0	309	201	0	0	—	—
Lithuania	190	223	0	0	2,004	919	4	2	—	—
Norway	260	227	44	31	3,642	3,708	518	428	—	—
Netherlands	9,176	10,593	40	97	128,953	138,045	692	811	—	—
Poland-Danzig	62	2	18	20	503	1,305	304	234	—	—
Romania	—	—	—	—	(1) 106	(1) 46	(1) 57	(1) 55	49	71
Switzerland	5,179	2,961	273	417	49,348	38,852	3,404	3,552	—	—
Czechoslovakia	44	324	269	137	1,753	2,432	3,071	2,604	—	—
Yugoslavia	60	112	4	2	3,384	4,142	46	57	—	—
Canada	1,329	355	60	66	80,989	88,955	1,387	1,411	—	—
Argentina	324	278	—	—	4,381	3,267	108	128	—	—
Turkey	—	—	—	—	46	29	—	—	—	—
Union of South Afr.	—	—	—	—	(1) 2,447	(1) 1,609	(1) 333	(1) 384	1,616	410
Australia	5,218	3,598	18	9	34,732	18,689	143	123	—	—
New Zealand	20,893	24,542	—	—	180,381	184,494	9	7	—	—
<i>Importing Countries:</i>										
Germany (5)	108	37	4,176	6,072	225	227	72,003	81,342	—	—
Austria (5)	24	549	104	121	3,536	10,532	1,726	2,015	—	—
Belgo-Luxemb. E. U.	18	20	4,665	4,043	280	368	53,363	49,983	—	—
Spain	—	—	—	—	—	—	—	—	—	—
France	2,965	2,108	3,622	2,134	26,508	24,747	31,262	29,143	—	—
Greece	—	—	—	—	225	904	1,534	679	—	—
Portugal	—	—	—	—	143	157	245	269	—	—
United Kingdom	357	359	27,884	20,717	4,859	5,935	329,202	329,239	—	—
Sweden	—	—	174	148	—	—	2,687	2,405	—	—
U. S. S. R.	—	—	—	—	(3) 35	(3) 31	(3) 192	(3) 487	71	547
United States	104	84	3,915	3,188	(1) 1,482	(1) 1,155	(1) 54,432	(1) 60,652	—	—
Chile	—	—	—	—	(1) 13	(1) 22	(1) 75	(1) 68	22	73
Peru	—	—	—	—	—	—	(2) 697	(2) 675	—	767
Burma	—	—	15	11	—	—	90	66	—	—
Ceylon	—	—	9	9	—	—	243	227	—	—
India: by sea (6)	0	0	101	104	2	4	1,166	1,239	—	—
Netherlands Indies:	—	—	—	—	—	—	—	—	—	—
Java and Madura	—	—	—	—	—	—	2,035	1,892	—	—
Indochina	—	—	—	—	2	2	578	675	—	—
Iraq	—	—	—	—	(1) 11	(1) 13	(1) 53	(1) 51	13	60
Iran	—	—	—	—	(1) 0	(1) 0	(1) 0	(1) 0	0	0
Japan	—	—	—	—	—	—	(2) 11	(2) 141	—	150
British Malaya	—	—	—	—	(1) 31	(1) 31	(1) 368	(1) 586	35	626
Palestine	—	—	—	—	35	15	2,112	2,335	—	—
Syria and Lebanon	26	11	44	40	783	551	591	825	—	—
Algeria	0	2	1,197	904	35	44	12,432	11,261	—	—
Egypt	—	—	—	—	(1) 84	(1) 57	(1) 7,187	(1) 6,625	66	7,225
French Morocco	—	—	—	—	—	—	3,444	3,591	—	—
Tunisia	—	—	—	—	62	49	2,683	2,844	—	—
Total	52,343	53,865	47,472	39,085	627,158	625,949	600,816	608,672	—	—

(1) Up to November 30. — (2) Up to October 31. — (3) Up to September 30. — (4) From April 1, 1937. — (5) From January 1, 1938 not including trade between Germany and Austria. — (6) From April 1, 1937 the Indian statistics include the trade of India with Burma, and exclude the direct trade of Burma with foreign countries.

COUNTRIES	JANUARY				FOUR MONTHS (October 1-January 31)				TWELVE MONTHS (Oct. 1-Sept. 30)	
	EXPORTS		IMPORTS		EXPORTS		IMPORTS		EXPORTS	IMPORTS
	1939	1938	1939	1938	1938-39	1937-38	1938-39	1937-38	1937-38	1937-38
Cacao. — Thousand lb.										
<i>Exporting Countries:</i>										
Grenada . . . . .	...	...	—	—	(1) 1,790	(1) 1,682	—	—	9,209	—
Haiti . . . . .	...	...	—	—	(1) 7,659	(1) 7,388	—	—	3,452	—
Dominican Republic . . . . .	...	...	—	—	(3) 20,792	(3) 28,583	—	—	62,265	—
Brazil . . . . .	...	...	—	—	(1) 7,868	(1) 8,142	—	—	282,120	—
Equador . . . . .	...	...	—	—	(1) 4,156	(1) 3,234	—	—	41,013	—
Trinidad . . . . .	...	...	—	—	2,875	3,799	—	—	42,102	—
Ceylon	891	1,109	—	—	—	—	—	—	8,836	—
Netherlands Indies:										
Java and Madura . . . . .	...	...	—	—	(1) 906	(1) 911	—	—	3,415	—
Cameron: Fr. m. t.	15,252	1,876	—	—	33,363	18,193	—	—	59,238	—
Ivory Coast . . . . .	...	...	—	—	(1) 20,029	(1) 14,238	—	—	110,434	—
Gold Coast	91,560	12,494	—	—	233,933	91,234	—	—	513,000	—
Madagascar . . . . .	...	...	—	—	(3) 95	(3) 15	—	—	538	—
Nigeria and Came- roon	49,007	33,228	—	—	96,373	77,367	—	—	211,819	—
São Thomé and Prin- cipe Islands	3,422	5,972	—	—	12,251	11,718	—	—	24,978	—
Togo: Fr. m. t. . . . .	...	...	—	—	3,106	1,213	—	—	14,925	—
<i>Importing Countries:</i>										
Germany (4)	0	0	17,963	13,146	0	675	71,289	62,175	675	170,722
Austria (4)	—	—	1,554	926	—	—	8,256	4,070	—	14,376
Belgo-Luxemb. E. U.	0	0	2,743	1,283	0	9	9,030	7,403	130	24,513
Bulgaria	—	—	291	251	—	—	899	604	—	1,576
Denmark	0	0	1,825	1,235	11	0	4,021	2,698	9	11,050
Spain	—	—	—	—	—	—	—	—	—	—
Estonia	—	—	73	68	—	—	351	333	—	1,041
Finland	—	—	62	40	—	—	168	128	—	364
France	0	0	7,350	5,216	300	4	32,534	30,984	51	94,118
Greece	—	—	—	—	—	—	(1) 1,404	(1) 1,457	—	3,655
Hungary	—	—	915	584	—	—	3,942	2,319	—	9,330
Ireland	—	—	686	66	—	—	1,795	582	—	3,847
Italy	—	—	1,182	1,731	—	—	6,336	6,949	—	20,239
Latvia	0	0	218	143	0	0	851	648	0	1,713
Lithuania	—	—	57	75	—	—	470	425	—	1,332
Norway	0	0	827	467	0	0	2,341	2,403	0	8,730
Netherlands	55	470	13,916	13,922	1,076	2,229	51,478	46,524	5,379	164,540
Poland-Danzig	—	—	1,151	1,398	—	—	7,291	6,605	—	17,719
Portugal	—	—	—	—	(1) 0	(1) 0	(1) 353	(1) 309	2	1,096
Romania	—	—	—	—	—	—	(2) 908	(2) 688	—	3,607
United Kingdom	2,099	1,239	37,842	23,684	5,734	13,398	79,204	49,044	17,267	282,746
Sweden	—	—	1,878	1,221	—	—	6,539	4,414	—	14,070
Switzerland	0	0	2,791	2,103	44	134	6,219	3,746	262	18,503
Czechoslovakia	—	—	2,438	1,572	—	—	9,312	9,173	—	23,338
Yugoslavia	—	—	130	373	—	—	968	1,085	—	2,815
U. S. S. R.	—	—	—	—	—	—	—	—	—	32,558
Canada	—	—	1,113	1,698	—	—	7,108	5,906	—	21,830
United States	—	—	40,642	31,802	—	—	123,373	127,725	—	466,297
Argentina	—	—	—	—	—	—	(1) 2,233	(1) 2,921	—	12,877
Chile	—	—	—	—	—	—	(2) 243	(2) 293	—	1,982
Colombia	—	—	—	—	—	—	—	—	—	4,535
Peru	—	—	—	—	(3) 0	(3) 0	(3) 84	(3) 66	0	930
Uruguay	—	—	—	—	—	—	(3) 196	(3) 170	—	1,548
Iran	—	—	—	—	—	—	(2) 18	(2) 7	—	31
Japan	—	—	—	—	—	—	—	—	—	5,051
British Malaya	—	—	—	—	(1) 18	(2) 9	(2) 7	(2) 18	62	68
Palestine	—	—	—	—	—	—	(1) 150	(1) 192	—	822
Syria and Lebanon	—	—	0	0	—	—	0	0	—	7
Algeria	0	0	9	60	0	0	134	77	0	470
Egypt	—	—	—	—	—	—	(2) 298	(2) 115	—	796
French Morocco	—	—	—	—	—	—	(1) 42	(1) 55	—	95
Tunisia	—	—	—	—	—	—	(1) 4	(1) 0	—	4
Union of South Africa	—	—	—	—	—	—	(2) 238	(2) 148	—	3,968
Australia	0	0	3,810	3,188	0	0	4,094	3,898	7	17,315
New Zealand	—	—	—	—	—	—	(1) 600	(1) 428	—	5,512
Total	162,286	56,388	141,466	106,252	452,379	284,175	444,781	386,785	1,411,188	1,471,736

(1) Up to December 31. — (2) Up to November 30. — (3) Up to October 31. — (4) From January 1, 1938, not including trade between Germany and Austria.

COUNTRIES	JANUARY				SEVEN MONTHS (July 1-January 31)				TWELVE MONTHS (July 1-June 30)	
	EXPORTS		IMPORTS		EXPORTS		IMPORTS		EXPORTS	IMPORTS
	1939	1938	1939	1938	1938-39	1937-38	1938-39	1937-38	1937-38	1937-38
Tea. — Thousand lb.										
<i>Exporting Countries:</i>										
Ceylon	16,076	13,651	0	0	124,401	117,562	0	0	231,823	0
China . . . . .	...	...	...	...	(1) 63,511	(1) 45,482	(1) 1,942	(1) 77	72,746	485
Chosen . . . . .	...	...	...	...	(2) 112	(2) 68	(2) 0	(2) 2	95	2
Taiwan . . . . .	...	...	...	...	(2) 14,187	(2) 14,002	(2) 0	(2) 53	21,239	53
India: by sea	21,784	25,530	337	423	288,588	286,642	2,434	2,915	346,797	3,316
" : by land . . .	...	...	—	—	(3) 4,489	(3) 4,835	—	—	13,678	—
Netherlands Indies:	...	...	...	...	(1) 60,757	(1) 57,889	(1) 306	(1) 298	123,464	791
Java and Madura .	...	...	...	...	(1) 16,226	(1) 15,629	—	—	31,445	—
Outer Provinces .	...	...	...	...	(1) 2,709	(1) 2,965	(1) 637	(1) 746	4,350	1,382
Indochina . . . . .	...	...	...	...	(3) 16,204	(3) 20,970	(3) 51	(3) 37	41,112	112
Japan . . . . .	...	...	...	...	...	...	...	...	...	...
<i>Importing Countries:</i>										
Germany (5)	15	29	1,202	1,045	106	236	7,855	6,724	306	10,992
Austria (5)	—	—	121	71	—	—	789	534	—	730
Belgo-Luxemb. E.U. .	0	0	57	53	0	4	359	337	7	635
Bulgaria	—	—	7	7	—	—	46	64	—	82
Denmark	0	2	101	214	33	29	842	675	53	1,261
Spain	—	—	—	—	—	—	—	—	—	—
Estonia	—	—	4	11	—	—	55	60	—	99
Finland	—	—	20	24	—	—	190	163	—	273
France	0	2	287	289	9	11	1,618	1,667	20	2,978
Greece	—	—	—	—	—	—	(1) 227	(1) 121	—	313
Hungary	—	—	31	37	—	—	368	320	—	487
Ireland	2	7	1,757	1,631	29	842	13,876	15,933	897	24,784
Italy	—	—	29	22	—	—	123	150	—	311
Latvia	0	0	9	4	0	0	37	42	—	73
Lithuania	—	—	2	0	—	—	49	49	—	90
Norway	0	0	22	26	0	0	223	231	—	377
Netherlands	18	22	2,346	2,101	110	121	17,123	15,344	207	27,157
Poland-Danzig . . .	0	0	322	302	0	0	2,253	2,123	2	3,810
Portugal	—	—	—	—	—	—	(1) 176	(1) 203	0	377
Romania	—	—	—	—	—	—	(2) 262	(2) 313	—	518
United Kingdom . .	4,795	4,081	51,774	50,237	35,660	38,828	372,446	370,625	69,977	526,336
Sweden	—	—	88	88	—	—	666	547	—	1,003
Switzerland	0	2	137	117	7	13	1,140	926	22	1,581
Czecho-Slovakia . .	—	—	82	110	—	—	802	833	—	1,204
Yugoslavia	—	—	64	22	—	—	353	300	—	443
U. S. S. R. . . . .	...	...	...	...	(4) 289	(4) 6,680	(4) 9,405	(1) 10,203	8,505	28,801
Canada	—	—	3,150	2,882	—	—	21,071	23,008	—	38,960
United States	—	—	7,699	6,367	—	—	50,715	53,850	—	85,839
Argentina	—	—	—	—	—	—	(1) 2,701	(1) 2,282	—	4,142
Chile	—	—	—	—	—	—	(2) 2,615	(2) 3,080	—	4,766
Peru	—	—	—	—	—	—	(3) 421	(3) 505	—	1,501
Uruguay	—	—	—	—	—	—	(3) 183	(3) 148	—	406
Burma	4	7	366	492	128	130	761	2,377	1,574	7,599
Iraq . . . . .	...	...	...	...	(2) 55	(2) 106	(2) 2,851	(2) 2,917	185	7,099
Iran . . . . .	...	...	...	...	(2) 0	(2) 0	(2) 6,920	(2) 5,997	—	17,749
British Malaya . . .	...	...	...	...	(2) 545	(2) 514	(2) 2,136	(2) 2,967	1,332	5,670
Manchukuo . . . . .	...	...	...	...	...	...	(3) 7,842	(3) 5,291	—	12,174
Palestine . . . . .	...	...	...	...	(1) 0	(1) 0	(1) 291	(1) 359	2	686
Syria and Lebanon .	0	0	46	33	0	0	302	231	2	340
Turkey	—	—	—	—	—	—	(1) 990	(1) 1,078	—	2,161
Algeria	0	0	196	220	2	2	2,068	2,057	4	3,827
Egypt	—	—	—	—	—	—	(2) 6,574	(2) 6,032	—	10,590
French Morocco . .	...	...	...	...	(1) 487	(1) 154	(1) 11,462	(1) 10,468	833	19,178
Tunisia . . . . .	...	...	...	...	...	...	(1) 2,423	(1) 2,392	—	4,594
Union of South Afr. .	...	...	...	...	(2) 168	(2) 132	(2) 7,236	(2) 6,662	472	15,516
Australia	24	29	2,862	3,477	298	284	29,006	25,990	454	45,179
New Zealand . . . .	...	...	...	...	(1) 82	(1) 79	(1) 5,703	(2) 4,863	139	12,214
Total . . .	42,718	43,362	73,118	70,245	629,192	614,209	601,824	595,160	971,742	947,046

(1) Up to December 31. — (2) Up to November 30. — (3) Up to October 31. — (4) Up to September 30. — (5) From January 1, 1938 not including trade between Germany and Austria.

COUNTRIES	JANUARY				SEVEN MONTHS (July 1-January 31)				TWELVE MONTHS (July 1-June 30)	
	EXPORTS		IMPORTS		EXPORTS		IMPORTS		EXPORTS	IMPORTS
	1939	1938	1939	1938	1938-39	1937-38	1938-39	1937-38	1937-38	1937-38
Coffee. — Thousand lb.										
<i>Exporting Countries:</i>										
Costa-Rica . . . . .	...	...	—	—	(1) 8,591	(1) 12,315	—	—	56,006	—
Guadeloupe	77	115	—	—	128	260	—	—	816	—
Jamaica . . . . .	...	...	—	—	(1) 4,226	(1) 3,060	—	—	8,296	—
Haiti . . . . .	...	...	—	—	(1) 24,932	(1) 18,365	—	—	50,341	—
Mexico . . . . .	...	...	—	—	(4) 6,878	(4) 5,507	—	—	71,792	—
Nicaragua . . . . .	...	...	—	—	(3) 3,878	(3) 1,634	—	—	30,905	—
Dominican Republic	...	...	—	—	(1) 7,670	(1) 8,378	—	—	19,213	—
Salvador . . . . .	...	...	—	—	(2) 17,899	(2) 19,890	—	—	116,843	—
Brazil	156,377	206,510	—	—	1,275,832	989,427	—	—	1,933,410	—
Colombia	42,269	51,335	—	—	325,350	303,108	—	—	531,757	—
British Guiana . . . .	...	...	—	—	(4) 18	(4) 108	—	—	227	—
Dutch Guiana . . . .	...	...	—	—	(2) 2,540	(2) 2,079	—	—	5,655	9
Peru . . . . .	...	...	—	—	(3) 2,485	(3) 3,069	(3) 2	(3) 2	5,481	—
Aden: by sea . . . .	...	...	—	—	(2) 4,689	(2) 2,487	—	—	7,200	7
India: by sea	3,060	1,270	0	0	6,166	5,104	2	7	16,405	—
Netherlands Indies:										
Java and Madura . . .	...	...	—	—	(1) 29,606	(1) 50,984	—	—	71,547	—
Outer Provinces . . .	...	...	—	—	(1) 67,285	(1) 85,434	—	—	118,953	—
Indochina	121	2	...	...	635	152	(1) 46	(1) 66	811	141
Angola . . . . .	...	...	—	—	(3) 14,301	(3) 14,279	—	—	30,830	—
Belgian Congo . . . .	...	...	—	—	(2) 15,536	(2) 15,088	—	—	38,766	—
Ivory Coast . . . . .	...	...	—	—	(3) 8,098	(3) 9,751	—	—	29,798	—
Kenya . . . . .	...	...	—	—	(3) 5,630	(3) 4,632	—	—	36,156	—
Uganda . . . . .	...	...	—	—	(3) 11,766	(3) 9,310	—	—	28,149	—
Madagascar . . . . .	...	...	—	—	(1) 53,762	(1) 33,707	—	—	70,817	—
Tanganyika . . . . .	...	...	—	—	(3) 15,227	(3) 15,834	—	—	32,342	—
New Caledonia . . . .	...	...	—	—	(2) 1,285	(2) 928	—	—	4,460	—
New Hebrides . . . .	...	...	—	—	(2) 529	(2) 518	—	—	1,235	—
<i>Importing Countries:</i>										
Germany (5)	0	0	26,425	33,116	0	0	254,844	226,722	0	400,425
Austria (5)	0	0	1,444	758	0	0	10,399	6,731	0	10,986
Belgo-Luxemb. E. U. .	128	99	9,489	8,120	3,735	2,469	65,810	68,233	4,526	117,643
Bulgaria	—	—	146	112	—	—	736	732	—	1,263
Denmark	2	53	13,713	8,816	478	522	54,858	35,686	767	62,056
Spain	—	—	—	—	—	—	—	—	—	—
Estonia	—	—	22	24	—	—	168	165	—	280
Finland	—	—	5,423	8,113	—	—	32,770	28,700	—	51,050
France	0	0	32,845	36,665	53	62	220,386	230,814	66	417,506
Greece	—	—	—	—	—	—	(1) 7,853	(1) 7,211	—	16,343
Hungary	—	—	183	397	—	—	2,610	2,608	—	4,334
Ireland	0	0	20	40	11	0	220	269	2	617
Italy	0	0	5,331	6,753	7	4	44,734	44,661	11	77,045
Latvia	0	0	40	35	0	0	236	236	0	443
Lithuania	—	—	24	22	—	—	192	181	—	375
Norway	2	9	2,339	2,319	75	112	22,829	18,325	205	38,239
Netherlands	1,179	926	9,797	7,216	9,266	3,276	72,574	56,983	8,256	101,631
Poland-Danzig	0	2	1,197	802	2	9	8,294	7,033	13	12,502
Portugal . . . . .	...	...	...	...	(1) 825	(1) 1,052	(1) 6,270	(1) 6,019	2,310	14,288
Romania . . . . .	...	...	...	...	—	—	(2) 3,045	(2) 2,478	—	6,475
United Kingdom	375	802	6,746	5,644	7,888	3,545	12,950	15,417	8,971	50,795
Sweden	—	—	8,664	8,320	—	—	70,464	59,697	—	105,716
Switzerland	0	0	2,313	2,533	0	2	21,905	15,333	4	31,370
Czechoslovakia	—	—	1,433	1,997	—	—	13,922	13,949	—	24,974
Yugoslavia	—	—	1,276	968	—	—	9,160	7,868	—	14,800
U. S. S. R. . . . .	—	—	...	...	—	—	(4) 893	(4) 187	—	1,398
Canada	66	42	4,418	4,385	192	247	23,191	22,086	401	41,950
United States	1,327	736	187,854	162,693	5,205	3,563	1,162,120	883,951	7,421	1,734,036
Argentina . . . . .	—	—	...	...	—	—	(1) 28,570	(1) 25,651	—	58,268
Chile . . . . .	—	—	...	...	—	—	(2) 3,305	(2) 4,396	—	8,799
Uruguay . . . . .	—	—	...	...	—	—	(3) 2,189	(3) 1,766	—	5,754
Ceylon	0	0	344	101	0	0	1,949	2,011	2	3,283
Burma	11	0	33	31	18	7	187	161	29	293
Iraq . . . . .	...	...	...	...	—	—	(2) 657	(2) 659	—	2,273
Iran . . . . .	...	...	...	...	—	—	(2) 529	(2) 60	—	633
Japan . . . . .	...	...	...	...	—	—	(3) 3,064	(3) 9,367	—	17,403
British Malaya . . . .	...	...	...	...	(2) 2,716	(2) 2,315	(2) 8,133	(2) 8,382	5,505	23,140
Palestine . . . . .	...	...	...	...	(1) 0	(1) 0	(1) 1,237	(1) 2,200	0	4,830
Syria and Lebanon . . .	0	0	302	187	0	0	1,523	1,506	0	3,311
Turkey . . . . .	...	...	...	...	—	—	(1) 5,467	(1) 5,232	—	11,477
Algeria	2	0	2,304	3,170	4	2	22,353	19,279	7	35,120
Egypt . . . . .	—	—	...	...	—	—	(2) 4,733	(2) 6,100	—	21,511
French Morocco . . . .	—	—	...	...	—	—	(1) 2,551	(1) 3,027	—	5,937
Tunisia . . . . .	...	...	...	...	(1) 7	(1) 0	(1) 1,713	(1) 1,770	4	3,415
Union of South Afr. . .	...	...	...	...	(2) 9	(2) 7	(2) 15,860	(2) 13,084	18	34,425
Australia	9	4	227	218	68	22	1,823	1,940	46	4,445
New Zealand . . . . .	...	...	...	...	(1) 0	(1) 2	(1) 291	(1) 1,497	2	1,744
Total	205,005	261,905	324,352	303,555	1,945,521	1,632,646	2,229,619	1,870,438	3,356,777	3,584,758

(1) Up to December 31. — (2) Up to November 30. — (3) Up to October 30. — (4) Up to September 30. — (5) From January 1, 1938 not including trade between Germany and Austria.

STOCKS

Wheat and wheat-flour held by commercial mills in the United States ⁽¹⁾.

LOCATION	Last day of month				
	December 1938	September 1938	December 1937	December 1936	December 1935
	thousand cents				
Wheat stocks, the property of commercial millers:					
Wheat held in mills, and mill-elevators attached to mills	52,296	60,333	55,074	54,746	57,192
Wheat in other elevators ⁽²⁾	17,923	18,620	17,294	18,383	18,868
Wheat in transit to merchant mills and bought to arrive ⁽³⁾	7,468	8,012	6,402	7,984	7,805
Total	77,687	86,965	78,770	81,113	83,865
Wheat-flour in mills and warehouses, and in transit, sold and unsold	8,461	8,455	8,938	9,185	8,276
Wheat stored for others in mills and mill-elevators	7,998	11,927	9,274	2,757	3,327
Grand total ⁽⁴⁾	97,858	111,057	100,903	97,086	99,098

⁽¹⁾ Partial census by the "Bureau of Census", including mills accounting for over 90 % of the total capacity of all commercial mills. — ⁽²⁾ In country elevators, in public terminal elevators and in private terminal elevators not attached to mills. — ⁽³⁾ Only about one-third of the quantities given here are actually in transit. — ⁽⁴⁾ Including flour in terms of grain.

Commercial cereals in store in Canada and the United States.

PRODUCTS AND LOCATION	Friday or Saturday nearest 1st of month ⁽¹⁾				
	March 1939	February 1939	January 1939	March 1938	March 1937
	thousand cents				
WHEAT:					
Canadian in Canada	85,827	90,226	96,697	27,250	43,309
U.S. in Canada	91	151	256	679	0
U.S. in the United States	57,284	65,362	77,249	38,429	26,225
Canadian in the United States	2,167	3,776	4,724	1,168	10,205
TOTAL	145,369	159,515	178,926	67,526	79,739
RYE:					
Canadian in Canada	1,180	1,176	1,135	715	871
U.S. in Canada	13	13	13	330	0
U.S. in the United States	4,277	4,551	4,687	2,088	2,229
Canadian in the United States	24	24	24	0	243
TOTAL	5,494	5,746	5,859	3,133	3,343
BARLEY:					
Canadian in Canada	3,026	3,151	3,683	4,346	4,295
U.S. in Canada	0	0	0	0	13
U.S. in the United States	5,628	6,601	7,207	5,339	6,577
Canadian in the United States	0	0	0	74	2,222
TOTAL	8,654	9,752	10,890	9,759	13,107
OATS:					
Canadian in Canada	2,939	3,012	3,015	3,279	4,349
U.S. in Canada	130	243	466	691	1
U.S. in the United States	4,688	4,974	5,414	7,486	8,258
Canadian in the United States	0	0	0	0	0
TOTAL	7,757	8,229	8,895	11,456	12,608
MAIZE:					
U.S. in Canada	2,112	2,322	2,742	262	0
Argentine in Canada	16	17	17	98	2,177
South African in Canada	238	278	322	1,252	534
Australian in Canada	99	105	115	0	0
U.S. in the United States	26,594	28,498	29,483	22,509	7,785
Of other origin in the United States	0	0	0	0	105
TOTAL	29,059	31,220	32,679	24,121	10,601

⁽¹⁾ Friday for Canada, Saturday for the United States. — ⁽²⁾ Danish barley.

Commercial cereals ⁽¹⁾ and oilseeds in store in Argentina

PRODUCTS	First day of month				
	February 1939	January 1939	December 1938	February 1938	February 1937
	thousand centals				
Rye	878	742	174	265	852
Barley	2,895	1,089	236	2,959	2,872
Oats	4,682	4,269	391	5,768	5,284
Maize	5,636	8,664	11,299	1,566	23,588
Canaryseed	166	217	213	236	75
Linseed	11,277	7,575	1,904	9,740	12,162
Sunflowerseed	241	743	1,065	—	—

⁽²⁾ Figures for wheat of the 1938-39 crop in store have been withheld by governmental order.

Commercial wheat in store in Australia.

Stocks of wheat, stacked at country sidings and terminal ports in the States of New South Wales, Victoria, South Australia and Western Australia amounted to 41,814,000 centals during the last week of February 1939 against 48,010,000 centals, 46,741,000 centals, 59,807,000 centals and 41,300,000 centals respectively during the last week of January 1939, December 1938, February 1938 and February 1937.

Quantities of cereals at sea with first destination Europe.

PRODUCTS	Saturday nearest 1st of month				
	March 1939	February 1939	January 1939	March 1938	March 1937
	thousand centals				
Wheat	22,939	22,690	13,968	25,579	34,277
Wheat-flour	837	633	585	868	680
TOTAL ⁽¹⁾ . . .	24,139	23,597	14,808	26,822	35,251
Rye	58	197	216	250	432
Barley	2,428	2,268	1,312	3,496	2,528
Oats	896	915	608	2,636	880
Maize	6,797	9,696	13,954	9,254	18,950

⁽¹⁾ Including flour in terms of grain.

AUTHORITY: *Broomhall's Corn Trade News*, Liverpool.

Cereals and potatoes belonging to farmers in Germany ⁽¹⁾.

PRODUCTS	Feb. 28 1939	Jan. 31 1939	Feb. 28 1938	Feb. 28 1937	Feb. 28 1939	Jan. 31 1939	Feb. 28 1938	Feb. 28 1937
	Percentage of total production				Stocks in thousand centals			
Winter wheat	25	36	12	13	28,100	40,400	10,300	11,800
Spring wheat	30	58	28	33	3,200	6,200	3,000	2,400
Rye	27	37	17	21	51,200	70,200	25,300	34,200
Winter barley	23	34	16	16	7,900	11,700	3,500	4,000
Spring barley	31	45	29	25	18,300	26,600	16,300	12,500
Oats	49	59	39	42	68,800	82,800	9,900	8,700
Meslin	40	56	45	44	11,300	15,800	58,200	54,500
Late potatoes	39	49	40	39	418,400	525,700	448,200	384,300

⁽¹⁾ 1937 frontiers.AUTHORITY: *Reichsnährstand* (The absolute figures are calculated by the International Institute of Agriculture).Cereals ⁽¹⁾ in elevators, mills, manufacturing establishments, etc. ⁽²⁾ in Germany ⁽³⁾.

PRODUCTS AND LOCATION	Last day of month				
	February 1939	January 1939	December 1938	February 1938	February 1937
	thousand centals				
WHEAT:					
Grain in mills and elevators (a)	53,255	49,679	44,747	30,179	17,300
Grain held by manufactures, etc. (b) . . .	809	723	578	254	201
Flour for bread in mills, etc. (a)	4,054	3,871	3,898	3,444	1,715
Flour for bread held by manufacturers, etc. (b)	42	40	42	42	15
TOTAL ⁽⁴⁾	59,185	55,290	50,260	34,789	19,740
RYE:					
Grain in mills and elevators (a)	56,752	52,492	46,714	34,026	20,726
Grain held by manufacturers, etc. (b) . . .	1,283	1,206	1,122	1,173	236
Flour for bread in mills, etc. (a)	2,513	2,568	2,725	2,604	1,691
Flour for bread held by manufacturers, etc. (b)	13	11	22	24	11
TOTAL ⁽⁴⁾	61,152	56,882	51,227	38,327	23,116
BARLEY:					
In mills and elevators (a)	9,392	10,106	9,778	4,833	2,244
In manufacturing establishments, etc. (b) .	8,292	8,649	9,374	7,520	4,852
TOTAL	17,684	18,755	19,152	12,353	7,096
OATS:					
In mills and elevators (a)	6,180	5,523	4,524	4,885	2,901
In manufacturing establishments, etc. (b) .	802	703	611	679	644
TOTAL	6,982	6,226	5,135	5,564	3,545
MESLIN	717	551	563	456	189
MAIZE:					
In mills and elevators (a)	5,454	7,524	9,074	6,920	2,542
In manufacturing establishments, etc. (b) .	503	750	1,016	406	179
TOTAL	5,957	8,274	10,090	7,326	2,721

⁽¹⁾ Excluding quantities in transit and stocks in the hands of bakers. — ⁽²⁾ Including cereals (a) in elevators and commercial mills, and (b) in the hands of manufacturers of mixed feedstuffs, malt, coffee substitutes and other foodstuffs, and in breweries. — ⁽³⁾ 1937 frontiers. — ⁽⁴⁾ Including flour in terms of grain, on a basis which, in accordance with government regulations on milling, has been altered several times.

Wheat in collective depots ⁽¹⁾ in Italy.

SPECIFICATION	Last day of month				
	February 1939	January 1939	December 1938	February 1938	January 1938
	thousand centals				
Deliveries:					
During the month	332	546	1,173	631	893
Since the beginning of the comm. season	90,333	90,001	89,455	86,391	85,760
Sales:					
During the month	5,685	6,602	5,930	7,180	7,059
Since the beginning of the comm. season	60,066	54,381	47,778	63,601	56,421
Stocks at the end of the month	30,267	35,620	41,677	22,790	29,339

⁽¹⁾ Farmers are obliged to deliver all the wheat they do not keep for home consumption or seed to collective depots (*ammassi collettivi*). Wheat imported definitely has also to pass through these depots.

Imported grain and flour at the ports of the United Kingdom and Ireland.

PRODUCTS AND LOCATION	First day of month				
	March 1939	February 1939	January 1939	March 1938	March 1937
	thousand centals				
WHEAT AS GRAIN:					
United Kingdom	8,904	7,800	9,456	4,584	4,008
Ireland	1,584	1,152	1,632	1,056	984
TOTAL	10,488	8,952	11,088	5,640	4,992
WHEAT-FLOUR (calculated as grain):					
United Kingdom	¹⁾ 408	²⁾ 456	³⁾ 384	648	960
WHEAT AND FLOUR, TOTAL	10,896	9,408	11,472	6,288	5,952
BARLEY:					
United Kingdom	1,080	1,100	1,400	1,200	1,240
OATS:					
United Kingdom	224	144	160	208	320
MAIZE:					
United Kingdom	1,944	1,896	1,200	3,456	4,080
Ireland	1,128	1,080	1,104	312	384
TOTAL	3,072	2,976	2,304	3,768	4,464

⁽¹⁾ Including 10,000 centals in Irish ports. — ⁽²⁾ Including 14,000 centals in Irish ports. — ⁽³⁾ Including 5,000 centals in Irish ports.
AUTHORITY: *Broomhall's Corn Trade News*, Liverpool.

Wheat and wheat-flour in the Union of South Africa.

LOCATION	Last day of month				
	January 1939	December 1938	November 1938	January 1938	January 1937
	thousand centals				
Wheat held by millers:					
South African	2,652	1,586	745	3,775	3,799
Imported	102	219	372	3	5
Wheat held by co-operatives	1,267	1,217	231	522	1,282
Total	4,021	3,022	1,348	4,300	5,086
Wheat-flour and boermeal ⁽¹⁾ held by millers	243	213	260	156	217
Grand total ⁽²⁾	4,349	3,311	1,701	4,510	5,376

⁽¹⁾ 140 lb. wheat flour or 165 lb. boermeal correspond to 200 lb. wheat. — ⁽²⁾ Including flour in terms of grain.

Imported cereals in Antwerpen, Rotterdam and Amsterdam.

PRODUCTS AND LOCATION	Saturday nearest 1st of month ⁽¹⁾				
	March 1939	February 1939	January 1939	March 1938	March 1937
	thousand centals				
WHEAT:					
Antwerpen	916	646	1,262	1,642	1,498
Rotterdam	2,428	2,200	2,099	1,159	329
Amsterdam	40	59	120	15	13
RYE:					
Antwerpen	58	131	58	45	28
Rotterdam	0	0	0	55	7
Amsterdam	0	0	2	0	0
BARLEY:					
Antwerpen	122	216	193	262	274
Rotterdam	25	6	24	33	33
Amsterdam	11	8	12	2	4
OATS:					
Antwerpen	12	27	0	15	23
Rotterdam	3	4	7	11	0
Amsterdam	47	48	49	26	24
MAIZE:					
Antwerpen	124	39	35	377	268
Rotterdam	115	40	29	331	176
Amsterdam	95	94	10	110	120

⁽¹⁾ For Antwerpen the data refer to the last day of the preceding month, for Amsterdam to the first day of the month indicated.

AUTHORITIES: *Nederlandsche Silo- Elevator- en Graanfactor Mij.*, Amsterdam, and *Chamber of Commerce and Industry for Rotterdam*, Rotterdam.

Home-grown wheat and rye in Sweden on January 2.

PRODUCTS AND LOCATION	1939	1938	1937	1936	1935
	thousand centals				
WHEAT:					
On farms ⁽¹⁾	5,323	3,397	2,633	4,003	5,905
In merchants' hands	1,727	1,390	1,281	1,324	2,460
In mills and mill-elevators	1,841	1,721	1,740	1,864	1,808
Stored by the Swedish Grain Society ⁽²⁾	2,799	1,307	1,657	2,817	3,214
TOTAL	11,690	7,815	7,311	10,008	13,387
RYE:					
On farms ⁽¹⁾	1,290	1,014	845	1,522	2,271
In merchants' hands	949	739	583	909	1,177
In mills and mill-elevators	605	702	1,000	912	889
Stored by the Swedish Grain Society ⁽²⁾	773	413	138	1,216	1,060
TOTAL	3,707	2,868	2,566	4,559	5,399

⁽¹⁾ Quantities available for sale. — ⁽²⁾ "Svenska Spannmålsaktiebolaget" is a society charged by the Government to take over all quantities of wheat and rye available for sale immediately after the harvest.

Cotton stocks on hand in the United States.

LOCATION	Last day of month				
	February 1939	January 1939	December 1938	February 1938	February 1937
	thousand cents				
In consuming establishments	7,740	8,079	8,427	9,012	10,041
in public storage and at compresses . . .	69,912	73,460	76,188	57,923	29,140
TOTAL . . .	77,652	81,539	84,615	66,935	39,181

Cotton stocks at Bombay, Alexandria and Port Sudan.

LOCATION	Thursday nearest 1st of month ⁽¹⁾				
	March 1939	February 1939	January 1939	March 1938	March 1937
	thousand cents				
Bombay ⁽²⁾	3,901	3,486	2,750	3,592	4,188
Alexandria ⁽²⁾	2,980	3,346	3,316	2,578	2,757
Port Sudan . . . . .	...	238	277	413	181

⁽¹⁾ For Port Sudan the data refer to the last day of the preceding month. — ⁽²⁾ Stocks held by exporters, dealers and millers. — ⁽³⁾ Quantities consumed in Alexandria, or returned to the interior of the country, are not included.

AUTHORITIES: East Indian Cotton Assn. and Commission de la Bourse de Minet-el-Bassal.

Cotton stocks in Europe.

LOCATION, DESCRIPTION	Thursday or Friday nearest 1st of month ⁽¹⁾				
	March 1939	February 1939	January 1939	March 1938	March 1937
	thousand cents				
<i>Great Britain:</i>					
American	2,123	2,272	2,487	3,903	2,017
Argentine	59	67	68	41	176
Brazilian	533	560	595	391	608
Peruvian	780	788	768	436	242
East Indian	187	134	150	210	223
Egyptian	517	464	475	446	567
Sudanese	399	414	404	259	435
W. Indian, W. and E. African, and other.	239	260	260	247	157
Total . . .	4,837	4,959	5,207	5,933	4,425
<i>Bremen:</i>					
American	714	723	836	1,165	716
South American	144	168	197	78	82
Other	152	132	125	144	142
Total . . .	1,010	1,023	1,158	1,387	940
<i>Le Havre:</i>					
American	925	1,084	1,280	1,563	1,253
South American	135	179	230	24	46
French Colonial	123	154	167	38	51
Other	37	32	28	43	48
Total . . .	1,220	1,449	1,705	1,668	1,398
<i>Total Continent ⁽²⁾:</i>					
American	1,903	2,096	2,475	2,983	2,092
South American	279	348	426	111	146
East Indian	91	69	85	88	74
Egyptian	97	87	94	81	86
W. Indian, W. and E. African, and other.	244	273	282	151	183
Total . . .	2,614	2,873	3,362	3,414	2,581
Grand total . . .	7,451	7,832	8,569	9,347	7,006

⁽¹⁾ Thursday for Continent, Friday for Great Britain. — ⁽²⁾ Including Bremen and Le Havre.

AUTHORITIES: Liverpool Cotton Assn. and (for Le Havre) Bulletin de Correspondance de la Bourse du Havre.

PRICES

PRICES BY PRODUCTS

All quotations are spot, on Fridays, unless otherwise stated. The monthly averages are based on the Friday quotations, and the yearly averages on the monthly.

DESCRIPTION	Mar 17	Mar 10	Mar 3	Feb. 24	AVERAGE					
	1939.	1939	1939	1939	Feb. 1939	Mar. 1938	Mar. 1937	Commercial Season (1)		
								1937-38	1936-37	
Wheat (1)										
Budapest: Tisza wheat, 78 kg. p. hl. (pengo p. quintal)	20.85	20.50	20.47	20.60	20.61	21.00	19.80	21.44	19.04	
Braila: Home-grown, good qual. (lei p. ql.)	440	n q	420	435	440	530	499	520	1 90	
Winnipeg: No. 1 Manitoba (cents p. 60 lb.)	58 1/2	59 1/8	60 7/8	60 1/2	60 1/8	137 1/2	134 1/8	131 1/2	122 1/2	
Chicago: No. 2 Hard Winter (cents p. 60 lb.)	71 1/2	n. 71 1/2	n. 72 1/2	n. 72	n. 71 1/2	n. 94 1/4	141	96 1/2	130	
Minneapolis (cents p. 60 lb.):										
No. 1 Northern	74 1/2	74 1/2	75 1/4	75 1/4	75 1/2	102	145 1/2	104 1/2	141	
No. 2 Amber Durum	69 1/8	69 7/8	70 1/4	69 1/2	68 7/8	93 1/8	153 1/2	93 1/2	138 1/8	
New York: No. 2 Hard Winter (cents p. 60 lb.)	82 1/2	82 1/4	83	83 1/8	82 1/2	111	154 1/8	112 1/2	147 1/8	
Buenos Aires (a): No. 2 Hard, 80 kg. p. hl. (paper pesos p. quintal)	7.00	7.00	7.00	7.00	7.00	11.47	11.15	12.20	12.28	
Karachi: White Karachi, 2% barley, 1 1/2% impurities (rupees p. 656 lb.)	23-14-0	23-11-0	23-14-0	23-3-0	24-5-0	24-7-0	33-6-3	26-15-9	31-4-11	
Hamburg (c. i. f.; Rm. p. quintal):										
No. 1 Manitoba	7.68	7.78	7.88	7.88	7.89	n. q.	14.79	14.50	13.32	
Barusso, 80 kg. p. hl.	5.67	5.73	5.79	5.85	5.89	11.49	12.64	11.45	11.90	
Antwerpen (francs p. quintal):										
Home-grown	129.00	124.00	123.00	123.00	120.75	134.25	135.50	135.05	135.40	
No. 1 Manitoba (Atlantic; c. i. f., arrived)	92.00	93.00	94.00	93.00	93.10	183.85	168.00	171.20	154.50	
Bahia (c. i. f., arrived) (2)	73.00	74.50	76.50	75.50	75.75	134.50	143.10	142.10	141.05	
London, Mark Lane: English (sh. p. 504 lb.; on the farm)	18/-	17/6	18/-	18/-	18/7 1/2	34/3	* 40/8	37/7 1/2	40/1 1/2	
Liverpool and London (c. i. f., parcels, shipping current month; sh. p. 480 lb.):										
French (on sample)	18.6	18/7 1/2	n. 18/9	19/-	* 19/7 1/2	n. q.	n. q.	n. q.	n. q.	
Danubian (on sample)	n. 18/-	17/9	18/6	18/9	19/2 1/2	n. q.	n. q.	* 36/2 1/2	* 38/1 1/2	
Soviet (on sample)	n. q.	n. q.	n. q.	n. q.	n. q.	36/5 1/2	n. q.	* 38/5 1/2	n. q.	
No. 1 Northern Manitoba (Atlantic)	27/4 1/2	27/9	28/3	28/-	28/1 1/2	n. 53/11 1/2	* 52/10	50/5 1/2	* 46/10 1/2	
No. 1 Northern Manitoba (Pacific)	25/-	25/9	26/1 1/2	26/1 1/2	26/7	50/4 1/2	51/9 1/2	* 48/11	* 45/9 1/2	
No. 3 Northern Manitoba (Pacific)	22/-	22/7 1/2	23/3	23/3	23/11 1/2	42/-	48/6 1/2	* 41/10 1/2	* 43/6	
No. 2 Hard Winter (Gulf)	20/9	n. q.	22/-	21/10 1/2	22/11 1/2	37/11 1/2	n. q.	39/0 1/2	n. q.	
Soft White Pacific	n. q.	n. q.	n. q.	21/6	* 21/6 1/2	33/11 1/2	n. q.	* 33/10 1/2	n. q.	
Rosafé, 63 1/2 lb. p. bush	* 20/6	* 20/7 1/2	* 21/-	* 21/3	* 21/4	37/11 1/2	* 40/4 1/2	38/2 1/2	* 39/3 1/2	
Choice White Karachi	n. q.	n. q.	n. q.	n. q.	n. q.	34/1 1/2	* 45/2	* 36/5 1/2	42/5 1/2	
West Australian (cargoes)	21/6	22/-	22/6	22/10 1/2	23/1 1/2	35/7 1/2	45/9 1/2	37/7 1/2	43/4 1/2	
New South Wales (cargoes)	21/6	22/-	22/6	22/10 1/2	23/1 1/2	35/3	45/9 1/2	37/6	43/0 1/2	

* Indicates that the product was not quoted during part of the period under review. — n. q. = not quoted. — n. s. = nominal.
— (a) Thursday prices.

(1) For fixed prices of wheat see Crop Report July 1938, p. 681 (for Berlin and Italy) and Sept. 1938, p. 861 (for France). — (2) Before Aug. 1937, "Barusso". — (3) August-July. — (4) Revised figure: 1 cb. 10; 74 1/2. — (5) Shipping Match.

(6) Feb. 17: 19/6 (shipping March); Feb. 10: n. q.; Feb. 3: 20/4 1/2; Jan. 27: n. 20/1 1/2. — (7) No. 1 Hard Winter. — (8) 64 lb. per bushel.

DESCRIPTION	Mar. 17	Mar. 10	Mar. 3	Feb. 24	AVERAGE			Commercial Season ¹⁾	
	1939	1939	1939	1939	Feb. 1939	Mar. 1938	Mar. 1937	1937-38	1936-37
Rye (¹).									
Hamburg: Plata, 72-73 kg. p. hl. (c.i.f.; Rm. p. quintal)	5.20	5.33	5.29	5.38	5.41	11.47	11.68	* 11.08	10.30
Budapest: Pest rye (pengö p. quintal)	14.20	13.90	13.92	13.85	13.91	18.84	18.68	18.57	17.17
Warszawa: Good quality (zioty p. quintal)	14.75	14.85	14.50	14.50	14.34	21.00	24.79	22.52	21.58
Winnipeg: No. 2 rye (cents p. 56 lb.)	38 3/4	39 3/4	41	41 1/4	41	73 1/4	105 1/4	72 1/2	98 3/4
Minneapolis: No. 2 rye (cents p. 56 lb.)	41 1/8	43 7/8	45 1/4	45 1/8	44 3/4	67 1/2	109 1/4	67 1/4	99 7/8
Antwerpen (francs p. quintal):									
Home-grown	n. q.	n. q.	n. q.	n. q.	n. q.	125.50	n. q.	124.85	n. q.
Soviet (c.i.f., arrived)	63.00	64.00	63.00	62.50	62.10	114.75	116.35	112.50	114.90
Plata (c.i.f., arrived)	80.50	81.50	81.50	81.00	82.75	123.75	133.85	124.55	122.85
Groningen (a): Home-grown (fl. p. quintal)	7.72	7.72	7.55	7.47	7.65	6.82	8.49	* 7.12	* 8.12
Barley (¹).									
Warszawa (zioty per quintal):									
Malting, good quality	19.50	19.50	19.50	19.00	18.62	20.19	27.25	* 22.41	* 25.12
Barley for other purposes, 1st quality	18.62	18.62	18.12	17.87	17.31	18.68	25.00	19.76	22.71
Braila: Average quality (lei p. quintal)	350	350	370	370	377	392	* 343	365	* 321
Winnipeg: No. 4 Western (cents p. 48 lb.)	34 1/4	34 3/8	35 3/8	35 7/8	35 5/8	58 1/2	75 7/8	56 1/4	66 1/4
Chicago: Feeding (on sample; cents p. 48 lb.)	37 1/2	37 1/2	35	35	38 1/2	55	81	51 3/4	67 1/4
Minneapolis: No. 2 Feeding (cents p. 48 lb.)	42	42 1/2	42 1/2	42	42	55 3/4	79	53 1/4	77 1/4
Antwerpen: (c.i.f., arrived; frs. per ql):									
Danubian	75.00	76.00	74.50	74.00	73.75	107.50	109.35	106.10	107.75
No. 2 Federal (²)	73.50	75.50	73.00	72.50	72.25	102.50	n. q.	100.80	n. q.
London, Mark Lane: English malting, good quality (sh. p. 448 lb., on farm)	35/-	35/-	35/-	35/-	35/-	48/1 1/4	* 41/6	* 53/-	* 41/2
Liverpool and London (c.i.f., parcels; shipping current month; sh. p. 400 lb.):									
Danubian, 3 % impurities	n. q.	n. q.	n. q.	n. q.	n. q.	n. q.	n. q.	n. q.	* 23/5
Soviet (Azov - Black Sea)	n. q.	n. q.	n. q.	n. q.	n. q.	n. q.	n. q.	n. q.	* 24/-
No. 3 Canadian Western (Atlantic)	18/4 1/2	18/10 1/2	18/9	19/-	19/2 3/4	25/8 1/4	n. q.	* 25/11	* 27/3
No. 3 Federal (Atlantic)	n. q.	n. q.	n. q.	n. q.	n. q.	n. q.	n. q.	* 22/3	n. q.
No. 1 Californian brewing (sh. p. 448 lb.)	28/-	29/-	28/9	28/6	28/7 1/2	34/9	n. q.	34/11 1/2	* 40/6
Plata, 64-65 kg. p. hl. (²)	17/9	18/3	17/10 1/2	18/-	18/0 1/2	27/6 1/4	27/3 1/4	* 26/4 1/4	25/0 1/4
Iraqian	16/9	17/6	17/6	17/9	17/11 1/2	24/9	25/10 1/2	24/5 3/4	23/11
No. 1 Australian Chevalier (sh. p. 448 lb.)	26/6	25/3	25/6	25/6	25/4 1/2	37/2 3/4	45/6	* 37/3	* 39/4
Groningen (a): Home-grown, winter (fl. p. q.)	n. q.	n. q.	n. q.	n. q.	n. q.	6.63	8.47	6.91	7.68
Oats (¹).									
Winnipeg: No. 2 White (cents per 34 lb.)	28 3/4	28 1/2	29	28 3/4	28 7/8	52	56	50 3/8	52 7/8
Chicago: No. 2 White (cents per 32 lb.)	32	32	32 1/4	32 1/2	32	33 1/4	50 7/8	32 1/4	49 3/4
Buenos Aires (b). No. 2 White, 49 kg. p. hl. (paper pesos p. quintal)	4.55	4.60	4.60	4.40	4.37	6.79	6.69	6.32	6.25
Paris: Home-grown (delivery regional depots; frs. p. quintal)	98.25	99.75	100.00	98.25	102.70	122.20	119.20	128.75	115.80
London, Mark Lane: English white (sh. p. 336 lb., on farm)	18/-	18/6	18/6	18/6	19/3	25/9	* 24/8	26/6 1/4	23/9 1/4
Liverpool and London (c.i.f., parcels; shipping current month; sh. p. 320 lb.):									
No. 1 Canadian feed (Atlantic)	14/10 1/2	15/-	15/-	15/4 1/2	15/8 1/4	n. q.	n. q.	* 24/-	* 24/-
No. 2 Canadian Western (Atlantic)	15/9	16/-	16/-	16/4 1/2	16/8 3/4	n. q.	n. q.	n. q.	23/4 1/2
Plata, f. a. q.	11/9	12/-	12/-	12/-	11/10 3/4	16/-	16/9 1/4	15/11 1/2	16/3 3/4
Milano (c) (lire p. quintal):									
Home-grown	94.50	94.50	96.50	96.50	97.75	97.50	106.50	100.05	99.60
Foreign	95.50	95.50	95.50	95.50	95.50	94.00	108.50	97.15	100.45

* Indicates that the product was not quoted during part of the period under review. — n. q. = not quoted. — n. = nominal. — (a) Prices of preceding Tuesday. — (b) Thursday prices. — (c) Saturday prices.

(¹) For the fixed prices of rye, feeding barley and oats in Berlin see Crop Report July 1938, p. 68; for those of malting barley in Praha see Crop Report August 1938, p. 781. — (²) As from Sept. 23, 1938: No. 3 Federal. — (³) Also indicated as "fair average quality" (f.a.q.). — (⁴) August-July. — (⁵) Shipping Pacific. — (⁶) Shipping May. — (⁷) Shipping April-May. — (⁸) Shipping March-April. — (⁹) Shipping April. — (¹⁰) Shipping March. — (¹¹) Shipping May-July.

DESCRIPTION	Average									
	Mar. 27	Mar. 10	Mar. 3	Feb. 24	Feb.	Mar.	Mar.	Commercial		
	1939	1939	1939	1939	1939	1938	1937	Season ^(a)	Season ^(a)	
								1937-38	1936-37	
Maize.										
Braila: Average quality (lei p. quintal).	380	380	385	390	394	n. q.	286	* 313	* 264	
Chicago: No. 3 Yellow (cents p. 56 lb.).	46 3/4	47 3/4	48	48 3/4	48 3/4	57 7/8	114 1/2	83	103 3/4	
Buenos Aires (a): Yellow Plata (paper pesos p. quintal)	6.85	6.90	6.90	6.70	6.60	9.32	6.77	7.79	5.85	
Antwerpen (c. i. f., arrived; francs p. qt.):										
Bessarabian	85.00	86.00	84.00	84.00	81.75	n. q.	n. q.	n. q.	n. q.	
Yellow Plata	85.50	86.50	83.00	83.50	82.00	110.45	86.95	101.00	78.65	
Cinquantino (Argentine "Cuarentino")	102.00	104.50	101.00	101.00	106.25	126.75	89.80	109.05	83.10	
Marseille (c. i. f., arrived; frs. p. 100 kg.):										
No. 1 Indochinese	127.00	126.50	129.50	127.00	127.85	...	...	...	...
No. 1 Madagascar	119.00	118.00	122.00	120.00	120.50	...	...	...	...
Liverpool and London (c. i. f., parcels; shipping current month; sh. p. 480 lb.):										
Danubian	23/9	24/3	24/10 1/2	24/6	24/4	26/11 1/2	26/2 1/2	* 27/5	* 23/5	
Yellow Soviet	23/-	24/3	24/10 1/2	24/3	24/1	n. q.	n. q.	n. q.	n. q.	
No. 2 Yellow American (Gulf)	23/7 1/2	24/-	24/10 1/2	25/6	24/2 1/2	26/5 1/2	25/6	* 27/2	22/4	
Yellow Plata	24/3	25/3	25/9	n. q.	25/2	28/1 1/2	n. q.	* 27/10	n. q.	
No. 2 White flat African	n. q.	n. q.	n. q.	n. q.	* 25/2	* 28/8	n. q.			
Milano (b): Yellow, home-grown (lire p. quintal) (c)	90.00	90.00	90.00	90.00	90.00	80.85	82.00	83.00	85.55	
Rice (milled) (c).										
								1938	1937	
Rangoon (delivery current month; rupees p. 7500 lb.):										
No. 2 Europe (Burma)	225-0	227-8	220-0	215-0	211-14	235-14	257-7	255-12	263-4	
Kamoungue, small mills specials	207-8	211-0	205-0	200-0	195-10	208-4	230-0	219-12	235-13	
Big mills specials	203-8	210-0	202-8	197-8	193-8	192-4	220-0	207-0	229-6	
Saigon (Indochinese piastres p. quintal):										
No. 1 Round white, 25 % broken	9.38	9.27	9.60	9.19	9.17	10.05	6.35	10.66	7.85	
No. 2 Japan, 40 % broken	8.90	8.77	9.02	8.86	8.80	9.47	6.16	10.11	7.58	
Marseille: No. 1 Saigon (c. i. f., arrived; frs. p. quintal)	118.00	118.00	120.50	120.00	123.35	* 125.10	83.59	138.65	104.90	
London (a) (c. i. f., shipping current month; shillings p. cwt.):										
Italian oil	17/9	17/9	17/9	17/9	17/9	17/6	* 16/6	* 17/10	* 17/	
American Blue Rose, extra fancy	16/3	16/1 1/2	16/3	16/1 1/2	16/3 1/2	14/1 1/2	* 21/	15/0 1/2	14/1 3/4	
No. 2 Rangoon or Bassein (Burma) (c)	7/4 1/2	7/4 1/2	7/3	7/1 1/2	7/0 1/2	7/8 1/2	* 8/10	8/3 1/4	9/2 1/2	
No. 1 Saigon	7/3	7/3	7/3	7/1 1/2	7/1	8/8 1/2	* 8/10	8/5 1/2	9/2 1/2	
Siam Super (c)	8/3	8/6	8/6	8/1 1/2	8/0 1/2	9/1	* 10/9	9/2 1/2	10/8	
Tokyo: "Tyumai", brown Japanese, average quality (yen p. koku)	35.20	35.20	35.20	35.20	35.17	33.97	31.62	34.26	32.37	
Linseed.										
Buenos Aires (a): Current quality, 4 % impurities (paper pesos p. quintal)	13.90	13.80	13.42	13.35	13.34	15.26	15.26	14.31	15.47	
Bombay: Bold (rupees p. cwt.)	6-15-6	7-0-0	6-14-3	7-0-3	7-2-1	7-9-0	7-15-0	7-4-10	7-14-10	
Antwerpen: Plata (c. i. f., arrived; frs. p. quintal)	156.00	154.50	149.00	149.00	147.75	179.10	172.85	166.20	183.10	
London (c. i. f., shipping current month; £ p. long ton):										
Plata (delivery Hull)	11-0-0	11-2-6	10-17-6	10-17-6	10-17-2	12-6-7	* 12-9-4	11-10-11	12-16-5	
Bombay bold	12-17-6	12-18-9	12-16-3	13-2-6	13-2-2	14-4-4	* 15-1-8	13-3-9	15-5-7	
Duluth: No. 1 Northern (futures; cents p. 56 lb.) (c)	174 1/2	176	179	176	176 1/2	198 1/2	216 1/2	183 1/2	204 1/2	
Minneapolis: No. 1 Northern (cts. p. 56 lb.)	184	185 1/2	n. 187 1/2	n. 185 1/2	184 3/4	205	219 1/2	190	209 1/2	
Cottonseed.										
Alexandria (a) (piastres p. ardeb):										
Upper Egyptian	59.4	61.0	60.8	60.5	62.5	56.0	88.4	55.3	77.8	
Sakellaris	55.7	57.5	57.4	57.1	58.8	51.3	82.6	50.7	72.6	
London (c. i. f.; £ p. long ton):										
Egyptian black (shipping current month)	6-6-3	6-11-3	6-8-9	6-8-9	6-10-7	5-19-1	8-19-1	6-1-6	8-3-3	
Sakellaris (arrived) (c)	n. 6-0-0	n. 6-6-3	n. 6-3-9	n. 6-3-9	n. 6-5-4	5-17-10	8-11-10	5-17-6	7-16-8	

* Indicates that the product was not quoted during part of the period under review. — n. q. = not quoted. — n. = nominal.
 — (a) Thursday prices. — (b) Saturday prices.

(c) Oct 1936-Jan. 1938: maximum prices for best quality. To end December 1936: free at Milano station; subsequently: free at producer's station. — (d) For the maximum prices of rice in Italy see Crop Report Oct. 1938, p. 979. — (e) As from June 1936 "London Standard". — (f) Quotations refer to May futures from January to May, to July futures in June and July, to September futures in August and September and to December futures during the remaining months. — (g) From June 8, 1938 indicated as Mela-Sakellaris. — (h) Maize: May-April; cottonseed: Sept.-Aug. — (i) Revised figure: Feb. 1937 1/2. — (j) Shipping April-May. — (k) Mixed maize. — (l) Shipping April. — (m) No. 2 White Rhodesian. — (n) Feb. 17 and 18: 35.20; Feb. 19: 35.20; Jan. 27, 28 and 29: 35.10; Jan. 30: 35.20; Dec. 30, 31 and 1939: 35.30; average Jan.: 35.12; average Dec.: 35.30.

DESCRIPTION	Mar. 17 1939	Mar. 10 1939	Mar. 3 1939	Feb. 24 1939	Average				Commercial Season (2)	
					Feb. 1939	Mar. 1938	Mar. 1937	1937-38	1936-37	
Cotton (1).										
New Orleans: Middling (cents p. lb.) . .	8.70	8.85	8.76	8.57	8.60	9.01	14.12	8.87	12.78	
New York: Middling (cents p. lb.) . . .	n. 9.02	n. 9.15	n. 9.08	8.90	8.97	8.87	14.38	8.75	12.91	
Bombay (rupees p. 784 lb.):										
Broach, f.g. (futures) (2)	153-4	155-4	153-2	149-4	150-8	170-0	239-13	* 166-11	224-14	
Broach, f.g. (spot)	154-0	154-0	155-0	151-0	n. q.	172-0	239-8	* 162-9	* 228-4	
Oomra, fine (spot)	144-0	143-0	144-0	141-0	141-8	152-4	226-12	* 148-13	* 214-14	
Alexandria (a) (talaris p. kantar):										
Sakellariadis, f.g.f.	12.50	12.60	12.35	12.15	12.22	13.61	21.49	14.19	19.22	
Giza 7, f.g.f.	12.22	12.62	12.27	11.77	11.81	13.04	19.44	12.81	17.22	
Ashmuni, f.g.f.	10.17	10.27	10.25	10.00	10.02	10.69	17.35	10.62	15.19	
Bremen: Middling (U.S. cents p. lb.) . .	10.29	10.36	10.23	10.04	9.80	10.85	16.42	10.63	15.01	
M.g. Broach, f.g. (pence p. lb.) . . .	n. 4.35	n. 4.35	n. 4.25	n. 4.20	n. 4.26 n.	4.70 n.	5.87 n.	4.68 n.	5.78	
Le Havre: Middling (futures; frs p. 50 kg.)	415.00	419.00	414.00	403.50	402.25	406.85 *	401.65	392.75	366.65	
Liverpool (pence per lb.):										
Middling, super good	5.97	6.10	5.99	5.88	5.83	5.86	8.68	5.79	7.89	
Middling	5.27	5.40	5.29	5.18	5.13	5.06	7.87	4.97	7.11	
São Paulo, g.f.	5.27	5.40	5.29	5.18	5.13	5.28	7.98	5.16	7.21	
Broach, good staple, f.g.	n. 3.78	n. 3.98	n. 3.92	n. 3.82	n. 3.86 n.	4.05 n.	6.01 n.	4.04 n.	5.71	
C.P. Oomra, superfine	n. 4.18	n. 4.18	n. 4.12	n. 4.02	n. 4.04	4.32	6.23	4.29	5.85	
Egyptian Sakellariadis, f.g.f.	6.95	7.19	7.12	7.02	7.06	8.39	11.76	8.22	10.79	
Giza 7, f.g.f.	6.95	7.19	7.12	7.02	7.09	7.44	10.59	7.42 *	9.72	
Upper Egyptian, f.g.f.	5.95	6.13	6.01	5.94	5.92	6.10	9.36	6.31	8.46	
Bacon.										
London, Provision Exchange (b) (shil- lings p. cwt.):								1938	1937	
English, No. 1, lean sizable	100/-	100/-	100/-	100/-	100/-	102/-	92/-	99/1	94/5	
Danish, No. 1, sizable	100/-	100/-	100/-	100/-	100/-	102/3	90/-	99/3	94/1	
Irish, No. 1, sizable	97/6	97/6	97/6	97/6	97/4	100/6	89/10	95/11	92/9	
Lithuanian, No. 1, sizable	92/-	92/-	92/-	92/-	91/-	93/6	84/-	91/8	87/4	
Dutch, No. 1, sizable	96/-	96/-	96/-	96/-	96/-	99/3	86/6	96/1	91/4	
Polish, No. 1, sizable	92/-	92/-	92/-	92/-	91/-	99/6	84/-	92/2	87/4	
Swedish, No. 1, sizable	96/-	96/-	96/-	96/-	96/-	99/3	86/6	96/1	91/2	
Canadian, No. 1, sizable	92/-	92/-	92/-	92/-	91/-	99/6	82/3	91/10	86/3	
Butter (3).										
Köbenhavn (a): Danish, pour l'exporta- tion (crs. p. quint.)	243.00	254.00	258.00	256.00	265.00	211.00	219.50	230.49	224.45	
Leenwarden, Commission for butter quot- ations (a): Dutch, pour l'exportation (cents p. kg.) (4)	81	81	81	83	85 3/4	81	67 3/4	80 1/4	77 3/4	
Antwerpen, auction: Belgian (frs. p. kg.)	23.20	22.90	23.65	24.95	25.30	22.36	21.25	23.30	22.65	
Liverpool: Irish creamery (sh. p. cwt.) .	n. q.	n. q.	n. q.	n. q.	n. q.	135/-	117/-	* 124/6	121/3	
London (c): English blended (sh. p. cwt.)	140/-	140/-	142/4	144/8	142/4	147/6	130/8	132/7	131/7	
London, Provision Exchange (b) (sh. p. cwt.):										
Danish creamery, unsalted	135/6	140/6	143/6	141/6	146/-	122/6	126/3	130/-	127/1	
Lithuanian, unsalted	n. q.	120/-	122 -	123/6	124/9	* 118/-	n. q.	* 115/8	* 114/11	
Dutch creamery, unsalted	114/6	114/6	116/-	122/-	125/-	115/3	98/3	113/10	109/7	
Argentine, finest, unsalted	n. q.	111/6	112/-	113/6	114/-	n. q.	90/6	* 103/-	* 94/4	
Siberian, salted	n. q.	n. q.	n. q.	n. q.	n. q.	n. q.	* 91/9	n. q.	* 100/2	
Australian, finest, salted	117/-	115/6	114/-	115/6	118/1	116/9	96/3	114/9	109/8	
New Zealand, finest, salted	118/-	118/-	116/6	118/6	121/3	117/-	96/1	117/1	110/5	
Montreal (d): First grade creamery (cents p. lb.)	22 1/4	22 1/4	22	22	22 1/8	35 1/4	—	27	* 27 1/4	
New York (d): 92 score, creamery (cents p. lb.)	22 1/4	26 1/4	26 1/4	26 1/4	26 1/4	30 1/4	35 1/4	28	34 1/4	

* Indicates that the product was not quoted during part of the period under review — n q = not quoted — n = nominal. — (a) Thursday prices. — (b) Average prices Thursdays, and Friday mornings. — (c) Average prices for weeks commencing on Thursdays. — (d) Wednesday prices.

(1) Quotations refer to April-May futures during the period September-May following, and to July August futures during the other months. — (2) Quotation refer to futures for the current month. — (3) For fixed prices of butter in Germany see Crop Report Nov. 1938, p. 1080. — (4) For home prices these quotations must be increased by a consumption tax which, from Jan 12, 1939 amounts to 60 cents per kg. — (5) Cotton: August-July. — (6) Fair staple.

DESCRIPTION	Mar. 17	Mar. 10	Mar. 3	Feb. 24	AVERAGE					Commercial Season	
	1939	1939	1939	1939	Feb. 1939	March 1938	March 1937	1938	1937		
Cheese ⁽¹⁾ .											
Milano (lire p. quintal):											
Parmigiano-Reggiano, 1st quality, production 1936 ⁽²⁾	n. q.	n. q.	n. q.	1,320.00	1,312.50	1,280.00	958.75	*1,229.00	*868.90		
Parmigiano-Reggiano, 1st quality, production 1937 ⁽²⁾	1,190.00	1,190.00	1,190.00	1,190.00	1,182.50	1,150.00	858.75	1,130.85	895.15		
Gorgonzola green, mature, choice	740.00	740.00	740.00	740.00	740.00	800.00	700.00	773.10	714.60		
Roma: Roman Pecorino, choice (lire p. quintal)	1,100.00	1,100.00	1,100.00	1,100.00	1,100.00	1,015.00	937.50	1,058.30	954.05		
Alkmaar: Edam 40 +, National Mark, factory cheese, small (florins p. 50 kg.)	18.00	19.50	19.50	19.50	19.94	22.19	18.81	21.33	19.73		
Gouda: Gouda 45 +, National Mark, farm made, 1st qual. (florins p. 50 kg.)	24.50	25.50	25.50	26.25	26.25	25.37	22.37	25.72	25.21		
London, Provision Exchange (a) (shillings p. cwt.):											
English Cheddar, finest farmers	91/-	91/-	91/-	91/-	91/-	97/-	87/9	*92/1	*90/3		
English Cheshire, Nat. Mark Selected.	100/4	100/4	100/4	100/4	100/-	114/-	103/10	96/9	97/10		
Italian Gorgonzola	86/4	87/6	86/4	86/4	86/7	113/8	102/11	103/2	103/6		
Dutch Edam, 40 + (b)	52/-	55/6	57/-	56/9	56/7	61/11	52/9	59/3	57/1		
Canadian, finest white (b)	72/6	73/-	73/-	73/-	73/-	76/4	72/4	75/3	73/7		
New Zealand, finest white	60/-	62/-	63/-	64/6	65/11	68/10	60/2	69/6	66/6		
Eggs ⁽¹⁾ .											
Antwerpen, auction: Belgian, average quality (frs. p. 100)	43.00	41.00	40.00	42.00	44.50	41.00	40.50	58.80	52.05		
Denmark (c): Danish for export (crs. per quintal)	74.00	74.00	74.00	74.00	88.50	73.50	91.20	116.70	109.13		
Apeldoorn (d): Dutch, average quality 57/58 gr. each (fl. p. 100)	3.45	3.25	3.20	3.20	3.25	2.60	3.47	3.85	3.77		
Barneveld (e): Dutch, average quality 57/58 gr. each (fl. p. 100)	3.20	3.20	3.15	3.25	3.35	2.62	3.49	3.90	3.77		
Warszawa (b): Polish, average quality, 50 gr. each (zloty p. 100)	6.40	6.25	6.25	6.50	7.79	6.09	7.67	8.31	8.11		
Liverpool: Irish, extra selected (sh. p. 120)	n. q.	8/9	9/6	10/-	11/2 1/4	8/9 3/4	11/8 1/2	13/7 1/2	13/1		
London, Egg Exchange (d) (shillings p. 120):											
English, National Mark, specials	11/3	10/3	12/-	13/3	13/7 1/4	11/8 1/4	12/9 1/2	17/9 1/2	17/3		
Belgian, 15 1/2 lb. p. 120	n. q.	n. q.	n. q.	n. q.	n. q.	n. q.	9/10	*11/8	*10/4		
Danish, 17 lb. p. 120	9/10 1/2	8/9	8/10 1/2	9/1 1/2	10/10 3/4	8/10 3/4	11/1	12/7 1/4	12/2 1/4		
Northern Irish, specials ⁽²⁾	10/10 1/2	9/9	11/3	12/1 1/2	12/6 3/4	10/10 3/4	12/9	16/8 3/4	16/7		
Lithuanian, 17 lb. per 120	8/6	8/-	8/1 1/2	8/6	9/0 3/4	8/1 1/4	10/-	*10/10	*10/2		
Dutch, all brown, 67/69 grams each	11/7 1/2	10/7 1/2	10/7 1/2	10/7 1/2	11/8 1/2	11/2 1/2	12/3	14/3 1/4	14/1		
Polish, 53/54 grams each	n. q.	6/-	6/3	6/5 1/4	6/5 1/4	n. q.	*7/9 1/2	*8/4	*7/9 1/2		
Romanian, 53/54 grams each	7/-	n. q.	6/2 1/4	6/4 1/4	7/4 3/4	6/6	*8/2 1/4	8/7 1/4	*8/5 1/2		
Chinese, "violet"	n. q.	n. q.	n. q.	n. q.	n. q.	n. q.	n. q.	n. q.	*8/11 1/2		
South African, 17 lb. per 120	n. q.	n. q.	n. q.	n. q.	n. q.	n. q.	n. q.	*13/11	*13/8		
Australian, 16 lb. p. 120	n. q.	n. q.	n. q.	n. q.	n. q.	n. q.	n. q.	*12/10	*11/8		

* Indicates that the product was not quoted during part of the period under review. — n. q. = not quoted. — n. = nominal. — (a) Average prices Thursdays and Friday mornings. — (b) Average weekly prices. — (c) Average prices for weeks commencing on Thursdays. — (d) Prices on following Mondays. — (e) Thursday prices.

⁽¹⁾ For fixed prices of cheese in Germany see Crop Report August 1938, p. 782. — ⁽²⁾ Prices of 1936 cheese are compared with the yearly and monthly averages of cheese made in 1935 and 1934; prices of 1937 cheese with those of 1936 and 1935. The yearly averages refer to periods from Sept. to August. See Crop Report Jan. 1938, p. 92. — ⁽³⁾ Before Oct. 18, 1937, "Extra special" quality.

OCEAN FREIGHT RATES (1)

DESCRIPTION	WEEK ENDING ON				AVERAGE					
	Mar. 18 1939	Mar. 11 1939	Mar. 4 1939	Feb. 25 1939	Feb. 1939	Mar. 1938	Mar. 1937	Commercial season (2)		
Shipments of wheat and maize.								1937-38	1936-37	
<i>Rates in shillings per quarter:</i>										
Port Churchill to United Kingdom	n. q.	n. q.	n. q.	n. q.	n. q.	n. q.	n. q.	* 3/11 ¹ / ₂	* 2/10 ¹ / ₄	
Montreal to United Kingdom	n. q.	n. q.	n. q.	n. q.	n. q.	n. q.	n. q.	* 3/3 ¹ / ₄	* 2/6	
St. John to Liverpool (2)	2/11	2/11	2/11	2/11	2/11	3/-	2/11	* 3/5	* 2/10 ¹ / ₂	
New York to Liverpool (2)	2/11	2/11	2/11	2/11	2/11	3/-	n. q.	* 3/3	n. q.	
Northern Range to U.K./Continent	n. 3/-	n. 3/-	n. 3/-	n. 3/-	3/-	n. 2/9	2/9	* 3/4 ¹ / ₂	* 2/9	
Gulf to United Kingdom (2)	n. 3/9	n. 3/9	n. 3/9	n. 3/9	3/9	3/1 ¹ / ₂	n. q.	4/0 ¹ / ₄	n. q.	
<i>Rates in shillings per long ton:</i>										
Danube to Antwerpen/Hamburg	n. 18/-	n. 18/-	n. q.	n. q.	n. q.	n. q.	* 20/6	* 24/1	* 20/4	
Black Sea to Antwerpen/Hamburg	11/4 ¹ / ₂	11/9	n. 12/4 ¹ / ₂	n. 12/-	n. 12/2	* n. 11/6	n. q.	* 17/2	* 16/10	
North Pacific to United Kingdom	23/3	23/3	23/6	23/8	23/6	27/11	n. q.	33/4	* 29/9	
La Plata Down River (2) /Bahia Blanca to United Kingdom/Continent	24/-	24/-	24/-	24/-	24/-	n. 24/-	28/-	* 26/10	23/11	
La Plata Up River (2) /Necochea to United Kingdom/Continent	25/3	25/3	25/3	25/3	25/3	25/3	29/2	28/9	25/2	
South Australia (2) to United Kingdom/ Continent (in bulk)	32/-	32 -	32/-	32/-	32/-	36/10	38/4	39/4	34/1	
Shipments of rice.								1938	1937	
<i>Rates in shillings per long ton:</i>										
Saigon to Europe	26/10	26/7	27/3	27/3	27/3 ¹ / ₂	36/9	n. 45/-	* 30/6	45/3	
Burma to United Kingdom/Continent	26/6	26/6	26/6	25/10	25/8 ¹ / ₂	32/10	38/-	* 31/8	* 39/6	

* Indicates that the rate was not quoted during part of the period under review. — n. q. = not quoted. — n. = nominal.

(1) Average rates for entire cargoes, except where otherwise stated, relating to contracts made, during periods often extending back several months, to operate during the weeks specified. — (2) Shipments of wheat and maize: Aug.-July. — (3) Rates for parcels by liners. — (4) Until Dec. 1937, rates for parcels by liners. — (5) "Down River" includes the ports of Buenos Aires, La Plata and Montevideo. — (6) "Up River" includes the ports on the Paraná River as far as San Lorenzo. Cargoes from ports beyond San Lorenzo (Colastine, Santa Fé and Paraná) are subject to an extra rate of freight. — (7) These rates refer to contracts made for shipments of wheat in bulk from South Australia (or Victoria) to the United Kingdom/Continent. They have been adjusted by the differences between the minimum rates ruling for shipments from other Australian States. The minimum rates per ton, fixed by the Tramp Shipping Administrative Committee, are: South Australia 32/-, Western Australia 31/-, New South Wales 31/6 (ex silo), 32/- (ex bags). An additional charge for bagged-wheat is fixed at 2/6 per ton in each case.

AVERAGE MONTHLY PRICES IN GOLD FRANCS PER QUINTAL ⁽¹⁾

DESCRIPTION	Feb. 1939	Feb. 1938	Feb. 1937	DESCRIPTION	Feb. 1939	Feb. 1938	Feb. 1937
Wheat.				Cotton.			
Winnipeg: No. 1 Manitoba .	6.76	16.22	14.40	New Orleans: Middling . .	58.04	61.21	87.86
Chicago: No. 2 Hard Winter.	8.08	11.47	15.69	Bombay (futures):			
Buenos-Aires: No. 2 Hard .	6.69	12.40	11.40	M.g. Broach, f.g.	45.35	57.63	71.38
Karachi: White Karachi . .	8.76	10.65	12.17	Alexandria:			
Liverpool and London (c.i.f.):				Sakellariadis, f.g.f.	80.02	100.33	127.11
No. 1 Manitoba (Pacific) .	8.76	19.30	16.75	Meat (dead weight).			
No. 2 Hard Winter	7.29	14.14	n. q.	<i>Beef, home-grown:</i>			
Rosafé	7.03	14.17	13.39	Paris	79.21	111.75	123.97
W. Australian (cargoes) .	7.62	13.19	14.81	London	93.04	111.60	86.40
Rye.				<i>Mutton, home-grown:</i>			
Warszawa: Home-grown. . .	8.34	12.34	14.20	Paris	157.04	181.63	214.89
Minneapolis: No. 2 rye . . .	5.39	9.04	13.48	London.	98.80	107.63	125.52
Barley.				<i>Pork, home-grown:</i>			
Winnipeg: No. 4 Western . .	4.98	8.82	10.98	Denmark	112.65	119.36	105.64
Minneapolis: No. 2 Feeding .	5.90	8.65	12.11	Rotterdam (live weight) .	77.13	101.10	76.13
Antwerpen: Danubian . . .	7.65	11.31	11.85	Paris (live weight)	72.57	82.15	88.92
Liverpool and London (c.i.f.):				London	118.15	122.62	113.06
No. 3 Canadian Western .	7.60	11.65	n. q.	Bacon.			
Plata	7.12	11.83	10.78	London:			
Oats.				English, No. 1, lean sizable	141.16	149.74	129.71
Winnipeg: No. 2 White . . .	5.70	11.31	10.97	Danish, No. 1, sizable . .	141.16	149.74	126.76
Chicago: No. 2 White	6.75	7.14	11.15	Butter.			
Buenos Aires: No. 2 White .	4.18	7.04	6.43	Köbenhavn: Danish	169.62	153.66	139.73
Liverpool and London (c.i.f.):				Leeuwarden: Dutch	140.71	138.80	114.61
Plata	5.88	8.60	8.38	London:			
Maize.				Danish	206.09	19.183	175.89
Chicago: No. 3 Yellow . . .	5.83	6.94	13.47	New Zealand, salted . . .	171.15	168.77	126.88
Buenos Aires: Yellow Plata.	6.31	9.72	6.52	Cheese.			
Liverpool and London (c.i.f.):				Alkmaar: Edam 40 +	65.44	76.05	62.74
Yellow Plata	8.24	* 11.53	8.35	London:			
Rice.				English Cheddar	128.45	146.71	128.23
Rangoon: No. 2 Burma . . .	6.67	7.95	8.61	New Zealand	93.05	101.84	77.51
Saigon: No. 1 Round white.	7.43	9.66	9.87	Eggs (per 100).			
London (c.i.f.): No. 2 Burma	9.94	12.19	13.39	Denmark: Danish (per ql) .	56.65	78.20	56.16
				London:			
				English	8.13	10.25	9.67
				Danish	6.01	8.11	7.27
				Dutch	9.98	8.83	8.79

⁽¹⁾ Extracts from tables published in the January, April, July and October issues; for method of conversion into gold francs per quintal, see these issues; for detailed specification of qualities and conditions, see "Prices by products".

**INDEX-NUMBERS OF PRICES OF AGRICULTURAL PRODUCTS
AND OF COMMODITIES BOUGHT BY THE FARMER**

DESCRIPTION	Feb.	Jan.	Dec.	Nov.	Oct.	Sept.	Feb.	Feb.	YEAR	
	1939	1939	1938	1938	1938	1938	1938	1937	1937-38 (¹)	1936-37 (¹)
Germany										
(Statistisches Reichsamt; products sold by farmers)										
Average for corresponding months 1909-10/1913-14 = 100.										
Cereals	113	112	112	111	109	108	112	107	110	105
Edible potatoes.	106	110	111	108	108	110	106	106	114	115
Plant products	112	112	112	111	109	108	111	107	111	107
Meat animals.	97	95	95	94	92	93	96	94	95	94
Livestock products (butter and eggs). .	107	109	108	106	104	106	104	103	109	108
Livestock and livestock products . . .	100	100	99	97	96	97	98	97	99	99
Total agricultural products	103	103	103	102	100	100	101	99	102	101
Germany										
(Statistisches Reichsamt; wholesale products)										
1913 = 100.										
Foodstuffs of plant origin	116.9	116.1	115.2	114.7	114.2	113.8	116.1	113.6	115.9	115.0
Livestock	90.2	90.0	90.4	90.5	89.9	90.0	86.7	84.9	88.6	87.2
Livestock products	115.2	117.4	115.8	115.2	112.5	112.4	112.1	111.1	112.9	110.9
Feedingstuffs	108.8	108.5	108.2	107.3	106.8	107.1	107.4	105.7	107.2	106.0
Total agricultural products	107.6	107.8	107.2	106.8	105.7	105.6	105.3	103.4	105.9	104.6
Fertilizers	57.3	56.5	55.1	53.4	54.5	54.3	57.6	62.4	55.3	57.0
Agricultural dead stock	110.7	110.7	110.8	110.9	110.9	110.9	112.7	112.7	111.3	112.7
Consumption goods (²)	135.0	135.0	135.1	135.0	135.1	135.1	135.7	130.7	135.4	133.3
Wholesale products in general.	106.5	106.5	106.3	106.1	105.7	105.6	105.7	105.5	105.7	105.9
England and Wales (²)										
(Ministry of Agriculture and Fisheries)										
Average 1927-1929 = 100.										
A: UNCORRECTED FOR SEASONAL VARIATION										
Cereals and farm crops	79	79	76	75	77	77	89	106	86.5	98.5
Livestock and livestock products . . .	96	99	98	98	93	86	99	90	88	88
Total agricultural products	93	95	94	94	91	84	97	93	90	90.5
Wholesale products in general (²) . . .	83.0	83.3	84.2	84.3	84.9	84.3	90.7	89.0	86.9	93.1
B: CORRECTED FOR SEASONAL VARIATION										
Cereals and farm crops	80	80	77	75	75	77	90	107	86.5	98.5
Livestock and livestock products . . .	89	90	88	89	88	88	92	84	88	88
Total agricultural products	88	89	86	86	86	86	92	88	90	90.5

(¹) Household goods of all kinds, and clothing. — (²) Index-numbers taking account of payments under the Wheat Act, the Cattle Subsidy Act, and Government payments for milk. — (³) Index-numbers of the Board of Trade, reduced to 1927-1929 = 100. — (⁴) Agricultural year: July 1-June 30.

DESCRIPTION	Feb.	Jan.	Dec.	Nov.	Oct.	Sept.	Feb.	Feb.	YEAR	
	1939	1939	1938	1938	1938	1938	1938	1937	1938	1937
Argentina										
(Banco Central de la Republica Argentina)										
1926 = 100.										
Cereals and linseed	72.4	77.4	77.2	70.9	73.2	75.3	111.2	91.9	90.6	101.3
Meat	90.0	85.4	85.7	88.0	88.3	91.7	102.3	83.0	94.8	93.6
Hides and skins	81.8	86.6	87.9	88.0	93.2	78.7	85.1	120.4	81.9	118.6
Wool	84.5	86.8	84.9	88.9	87.6	88.1	95.2	152.2	92.5	143.7
Dairy products	78.2	74.0	63.1	67.5	73.6	82.2	108.3	88.2	83.9	93.7
Forest products	101.6	101.6	100.5	100.9	100.6	100.5	98.9	98.0	100.0	98.6
Total agricultural products	77.1	80.4	80.1	76.6	78.8	79.5	106.0	98.3	90.6	105.1
Non agricultural commodities	109.2	109.2	109.1	108.1	108.0	107.2	112.4	108.5	109.4	114.4
Wholesale products in general	102.4	103.1	103.0	101.5	101.8	101.4	111.2	106.5	105.5	112.6
Australia (Commonwealth)										
(Commonwealth Bureau of Census and Statistics)										
1928-29 = 100.										
Agricultural field products	80.2	78.4	78.1	...	...	78.2	91.1	98.9	93.1	98.0
Pastoral products	66.5	65.8	66.6	...	...	78.4	72.0	90.3	81.4	89.1
Farmyard and dairy products	89.3	87.7	87.4	...	...	83.4	77.2	73.3	77.8	73.1
Total agricultural products	73.4	74.2	74.4	...	...	...	...	...	...	...
Belgium										
(Belgische Boerenbond — Boerenbond belge)										
Average of corresponding months 1909-1914 = 100.										
Field products . . . . .	...	504	489	487	485	471	525	562	541	577
Livestock products . . . . .	...	687	719	725	734	719	689	589	689	617
Total agricultural products . . . . .	...	629	646	650	656	641	653	580	643	604
Rent . . . . .	...	650	650	650	650	650	650	640	650	647
Agricultural wages . . . . .	...	900	900	900	900	900	870	835	887	851
Fertilizers . . . . .	...	471	478	476	473	464	471	436	471	443
Feedingstuffs . . . . .	...	585	574	540	565	569	678	595	631	610
Total production expenses (including those not specified) . . . . .	...	759	751	744	748	748	761	726	757	736
Bohemia										
(Institute for Farm Accounting and Agricultural Economics)										
1913-14 = 100										
A: SUGARBEET REGION										
Plant products . . . . .	...	619	591	567	563	565	595	565	584	576
Livestock products . . . . .	...	562	575	577	562	591	499	568	531	550
Total agricultural products . . . . .	...	595	584	571	563	576	556	566	562	565
Total production expenses . . . . .	...	818	805	806	802	807	796	772	801	783
B: NON-SUGARBEET REGION										
Plant products . . . . .	...	677	668	658	656	661	656	601	656	623
Livestock products . . . . .	...	553	556	553	551	540	484	561	504	539
Total agricultural products . . . . .	...	603	601	595	593	588	552	577	565	572
Total production expenses . . . . .	...	833	819	819	809	818	806	794	811	796

(*) July 1-June 30.

DESCRIPTION	Feb.	Jan.	Dec.	Nov.	Oct.	Sept.	Feb.	Feb.	YEAR	
	1939	1939	1938	1938	1938	1938	1938	1937	1938	1937
Canada										
(Dominion Bureau of Statistics, Internal Trade Branch) 1926 = 100.										
Field products (grain, etc.)	54.7	54.7	53.8	54.6	53.6	53.4	87.5	89.6	69.0	88.3
Livestock and livestock products	81.5	81.7	82.8	82.1	81.0	81.1	81.1	82.6	81.3	85.0
Total Canadian farm products	64.7	64.8	64.6	64.9	63.8	63.8	85.1	87.0	73.6	87.1
Fertilizers	83.0	82.8	82.8	82.8	82.8	82.8	75.2	74.2	78.9	74.5
Consumers' goods (other than foodstuffs, beverages and tobacco)	76.1	76.2	76.7	76.7	76.8	77.3	78.0	77.8	77.2	78.4
Wholesale products in general.	73.2	73.3	73.3	73.5	74.1	74.5	83.6	82.9	78.3	84.6
Chili										
(Dirección General de Estadística) 1913 = 100										
Cereals . . . . .	...	...	461.5	560.6	603.8	600.0	526.9	496.8	551.0	572.3
Other plant products . . . . .	...	...	359.0	373.9	362.6	379.5	362.7	322.2	375.4	375.3
Meat animals. . . . .	...	...	329.4	369.7	380.4	408.0	369.7	360.0	380.3	381.2
Meat . . . . .	...	...	283.9	317.6	345.0	352.9	308.6	276.7	324.7	316.2
Total agricultural products . . . . .	...	...	379.9	424.7	435.9	446.7	408.0	374.5	424.3	430.0
Domestic industrial products . . . . .	...	...	460.1	473.9	478.1	482.3	464.7	468.4	472.5	489.4
Wholesale products in general. . . . .	...	...	489.9	508.7	513.6	519.0	506.9	490.0	510.7	522.6
United States										
(Bureau of Agricultural Economics) Average 1909-10 to 1913-14 = 100.										
A: UNCORRECTED FOR SEASONAL VARIATION										
Cereals	66	66	63	60	60	63	89	146	74	126
Cotton and cottonseed	70	71	70	73	72	69	68	108	70	95
Fruits	78	76	73	71	70	75	68	127	73	122
Truck crops (market garden crops) . . .	108	96	108	98	108	98	111	150	105	123
Meat animals.	116	112	109	111	111	117	110	126	114	132
Dairy products.	107	109	112	109	107	104	121	126	109	124
Chickens and eggs	91	97	127	131	124	118	94	101	108	111
Miscellaneous	92	109	108	95	107	98	97	147	95	130
Total agricultural products	92	94	96	94	95	95	97	127	95	121
Commodities bought for use in living and production ⁽¹⁾	120	120	120	121	121	121	126	132	123	130
Agricultural wages ⁽¹⁾	—	117	—	—	118	—	^{a)} 111	^{a)} 103	116	120
B: CORRECTED FOR SEASONAL VARIATION										
Cereals	65	67	64	62	62	64	88	144	74	126
Cotton and cottonseed	72	73	74	74	73	67	69	110	70	95
Fruits	82	83	81	81	76	80	73	138	73	122
Truck crops (market garden crops) . . .	108	96	108	102	107	107	111	143	105	123
Meat animals.	117	116	116	116	111	116	111	127	114	132
Dairy products.	104	105	107	105	106	106	117	122	109	124
Chickens and eggs	90	86	98	103	110	117	94	100	108	111
Miscellaneous	98	109	107	90	103	100	104	156	95	130
Total agricultural products	93	95	96	93	94	95	98	129	95	121

⁽¹⁾ 1910-1914 = 100. — ⁽²⁾ January.

DESCRIPTION	Feb.	Jan.	Dec.	Nov.	Oct.	Sept.	Feb.	Feb.	YEAR	
	1939	1939	1938	1938	1938	1938	1938	1937	1938	1937
United States										
(Bureau of Labor) 1926 = 100.										
Cereals . . . . .	...	56.3	54.4	50.9	50.8	53.0	73.0	111.5	60.7	98.3
Livestock and poultry . . . . .	...	78.0	74.4	75.2	76.2	81.0	78.1	89.9	79.0	95.5
Other farm products . . . . .	...	63.2	66.5	67.4	65.0	64.0	63.5	86.3	64.0	77.2
Total agricultural products . . . . .	...	67.2	67.6	67.8	66.8	68.1	69.8	91.4	68.6	86.4
Agricultural implements . . . . .	...	93.4	93.5	93.7	95.4	95.5	96.2	93.1	95.6	94.0
Fertilizer materials . . . . .	...	...	68.6	67.7	67.5	67.2	72.3	70.7	69.2	71.2
Mixed fertilizers . . . . .	...	74.8	73.8	73.2	73.4	73.4	72.3	71.7	72.2	73.2
Cattle feed . . . . .	...	79.9	76.6	70.5	66.5	67.6	86.7	129.4	77.0	111.5
Non-agricultural commodities . . . . .	...	78.0	79.0	79.5	79.9	80.4	81.9	85.0	80.6	86.2
Wholesale products in general. . . . .	...	76.9	77.0	77.5	77.6	78.3	79.8	86.3	78.6	86.3
Finland										
(Central Bureau of Statistics) 1935 = 100.										
Agricultural products	119	118	120	119	117	118	118	115	117	115
Forestry products	140	145	146	141	132	134	160	140	145	165
Feedingstuffs	133	123	121	119	122	124	138	130	129	133
Fertilizers	107	107	105	105	105	104	111	107	109	109
Wholesale products in general.	113	113	113	112	111	111	118	116	114	122
Hungary										
(Central Royal Bureau of Statistics) 1913 = 100.										
Agricultural and livestock products.	83	83	84	83	87	89	81	78	—	—
Wholesale products in general.	94	94	95	94	97	99	93	93	—	—
Ireland										
(Department of Industry and Commerce) Average 1911-1913 = 100.										
Agricultural products in general. . . . .	...	109.6	113.0	113.9	116.3	114.1	107.4	93.8	111.9	104.9
Italy										
(Istituto Centrale di Statistica) 1928 = 100.										
Plant products . . . . .	...	...	89.3	89.9	91.3	92.2	82.8	76.1	88.6	79.7
Livestock products . . . . .	...	...	86.3	87.9	87.8	87.0	91.4	82.3	86.7	91.1
Total agricultural products . . . . .	...	...	88.2	89.0	90.0	90.4	85.0	77.9	87.8	82.8
Feedingstuffs . . . . .	...	...	102.3	105.1	99.8	100.5	95.3	83.4	99.6	83.6
Fertilizers, and chemicals for plant diseases . . . . .	...	...	100.0	99.7	99.4	100.2	99.9	89.6	100.7	94.2
Wholesale products in general.	97.2	97.1	96.4	97.2	96.9	96.8	93.7	83.3	95.3	89.1

DESCRIPTION	Feb.	Jan.	Dec.	Nov.	Oct.	Sept.	Feb.	Feb.	YEAR	
	1939	1939	1938	1938	1938	1938	1938	1937	1938	1937
Lithuania										
(Lietuvos Bankas)										
1926-1929 = 100.										
Cereals . . . . .	...	39	39	38	38	39	43	47	41	46
Cattle, fowls . . . . .	...	52	53	52	53	52	49	46	51	49
Leather, hides, wool . . . . .	...	54	53	52	51	50	54	60	51	60
Meat, dairy products and eggs . . . . .	...	51	51	49	47	45	47	44	47	44
Total agricultural products . . . . .	...	47	47	46	45	45	46	47	46	47
Wholesale products in general . . . . .	...	52	52	51	51	51	51	51	51	51
Norway										
(Kgl. Selskap for Norges Vel)										
Average 1909-1914 = 100.										
Cereals	166	167	167	167	167	167	176	168	173	154
Potatoes	147	150	134	130	121	117	220	158	188	132
Pork	125	133	133	133	135	134	113	114	117	110
Other meat	166	162	171	165	167	182	190	148	187	148
Dairy products	179	114	179	177	175	175	173	144	165	139
Eggs	99	179	143	153	162	154	121	105	124	113
Concentrated feedingsuffs	154	155	157	161	161	162	153	146	152	130
Maize	159	162	158	155	156	157	157	134	149	130
Fertilizers	94	93	92	89	100	100	102	89	95	87
New Zealand										
(Census and Statistics Office)										
Average 1909-1913 = 100.										
Dairy products	124.9	115.9	114.2	121.2	131.7	128.4	110.5	95.3	121.0	109.2
Meat	170.7	175.0	177.8	181.9	169.0	171.1	180.9	168.2	175.2	165.1
Wool	108.9	114.3	117.8	114.2	98.7	116.3	121.1	181.1	117.6	176.8
Other pastoral products	92.5	90.0	90.6	89.2	93.8	93.9	107.5	139.7	94.7	153.5
All pastoral and dairy products	131.4	130.2	131.7	134.9	132.5	135.6	132.9	137.1	134.0	142.3
Field products	145.1	136.0	136.3	135.9	142.3	139.5	135.9	120.4	139.6	136.5
Total agricultural products	131.7	130.3	131.8	135.0	132.8	135.7	133.0	136.6	134.2	142.2
Poland										
(Central Bureau of Statistics)										
1928 = 100.										
Raw plant products	36.4	36.2	36.3	35.3	35.7	35.9	48.7	53.2	43.6	53.4
Meat animals	44.0	42.3	42.4	40.9	44.4	45.7	39.6	42.7	42.1	43.5
Dairy products and eggs	49.3	50.6	52.1	53.1	48.6	46.6	50.9	46.4	47.6	48.2
Products directly sold by farmers	41.3	40.9	41.2	40.5	41.0	41.1	46.1	48.5	43.8	49.2
Flour and groats	43.7	44.2	44.7	43.7	43.7	45.1	51.9	60.1	49.1	55.9
Meat and lard-fat	47.8	48.1	47.4	46.6	48.9	50.9	48.1	45.6	48.3	48.1
Sugar, alcohol, beer	71.3	71.3	71.3	71.3	71.3	71.3	71.3	71.3	71.3	71.3
Products of agricultural industries	54.1	54.4	54.4	53.8	54.6	55.7	56.9	58.7	56.1	58.3
Total agricultural products	47.6	47.6	47.7	47.0	47.7	48.3	51.4	53.5	49.9	53.7
Commodities bought by farmers	64.7	64.5	64.4	64.3	64.5	64.6	65.6	66.0	65.0	62.1
Wholesale products in general	55.0	54.9	55.0	54.6	54.8	55.0	57.7	59.8	56.2	59.4

(P) Agricultural year: April 1-March 31.

DESCRIPTION	Feb.	Jan.	Dec.	Nov.	Oct.	Sept.	Feb.	Feb.	YEAR	
	1939	1939	1938	1938	1938	1938	1938	1937	1937-38 (²)	1936-37 (¹)
Netherlands										
(Bureau of Agriculture)										
Average 1924-25 to 1928-29 = 100.										
Plant products	59	59	57	56	56	57	61	60	63	58
Livestock products	60	61	62	61	63	63	65	57	66	57
Total agricultural products	60	61	61	60	62	62	64	57	65	57
Wholesale products in general (¹) . .	69.9	70.2	70.6	70.2	70.9	70.5	74.2	74.0	³ 71.9	³ 76.2
Agricultural wages	74	74	74	74	74	74	68	68	69	68
Sweden										
(Sveriges Allmänna Lantbrukssällskap)										
Average 1909-1913 = 100.										
Plant products	105	104	102	103	105	106	124	126	115	123
Meat animals	142	141	132	130	132	138	143	133	133	126
Dairy products	163	162	163	156	143	136	126	120	142	134
Livestock and livestock products . .	156	156	155	149	141	137	138	130	139	132
Total agricultural products	139	139	137	134	129	126	134	129	131	129
Feedingstuffs	144	144	143	142	146	140	141	143	140	139
Fertilizers	94	94	93	94	94	94	97	94	96	94
Building materials	180	180	180	180	180	176	188	185	182	191
Machinery and implements	204	204	204	204	204	225	217	196	218	203
Sundries	120	120	119	120	121	121	129	122	124	127
Total commodities purchased	144	144	143	143	145	145	148	143	146	145
Wholesale products in general . . .	134	134	134	134	135	134	142	140	137	145
Agricultural wages . . . . .	...	...	...	...	³ 204	³ 204	204	193	³ 204	194
Switzerland										
(Schweizerischer Bauernverband)										
1914 = 100.										
Slaughter cattle . . . . .	...	109	110	115	115	115	118	118	117	122
Slaughter pigs . . . . .	...	127	127	127	126	123	130	130	125	127
Milk (base price) . . . . .	...	121	121	121	121	121	119	119	120	118
Total agricultural products	117	119	120	121	119	118	123	122	...	125
Feedingstuffs (²)	109	108	108	106	106	107	100	98	105	97
Fertilizers (²)	100	100	102	102	99	99	93	89	96	85
Wholesale products in general (²) . .	105.2	105.7	106.1	106.1	105.8	105.5	109.4	111.3	107.1	111.2
Yugoslavia										
(National Bank of the Kingdom of Yugoslavia)										
1926 = 100.										
Plant products	85.8	86.9	85.2	81.6	84.4	88.4	87.1	68.1	85.8	74.1
Livestock products	61.9	64.1	65.7	67.2	65.6	66.1	67.2	62.7	65.8	65.1
Industrial products	76.5	76.6	76.7	75.9	75.9	76.3	80.1	74.0	78.2	77.6
Wholesale products in general . . .	76.6	77.5	77.5	76.7	76.8	78.0	79.9	70.9	78.3	74.7

(¹) Index numbers calculated by the Central Statistical Bureau of the Netherlands; base 1926-1930. — (²) Index numbers calculated by the Bundesamt für Industrie, Gewerbe und Arbeit; base July 1914. — (³) Agricultural year: July 1 - June 30. — (⁴) Calendar years 1938 and 1937 respectively. — (⁵) Provisional data.

VARIATIONS IN THE INDEX-NUMBERS OF PRICES

The index-numbers of prices of agricultural and other products of interest to the farmer, as published by the various countries, are often very heterogeneous and consequently great care has to be taken in drawing conclusions from the supplementary information given in the following comparative summary table.

COUNTRIES	Percentage variations in the index-numbers of prices of			
	agricultural products	all products	agricultural products	all products
	February 1939 in comparison with			
	January 1939		February 1938	
Germany (products sold by farmers) . . .	0.0	—	+ 2.0	—
Germany (wholesale prices) . . .	— 0.2	— 0.0	+ 2.2	+ 0.8
England and Wales (a) . . .	— 2.1	— 0.4	— 4.1	— 8.5
England and Wales (b) . . .	— 1.1	—	— 4.3	—
Argentina . . .	— 4.1	— 0.7	— 27.3	— 7.9
Canada . . .	— 0.2	— 0.1	— 24.0	— 12.4
United States: Bureau of Agric. Economics (a)	— 2.1	—	— 5.2	—
United States: Bureau of Agric. Economics (b)	— 2.1	—	— 5.1	—
Finland . . .	+ 0.8	— 0.0	+ 0.8	— 4.2
Hungary . . .	— 0.0	— 0.0	+ 2.5	+ 1.1
New Zealand . . .	+ 1.1	—	— 1.0	—
Netherlands . . .	— 1.6	— 0.4	— 6.2	— 5.8
Poland . . .	— 0.0	+ 0.2	— 7.4	— 4.7
Sweden . . .	— 0.0	— 0.0	+ 3.7	— 5.6
Switzerland . . .	— 1.7	— 0.5	— 4.9	— 3.8
Yugoslavia { vegetable products . . .	— 1.3	—	— 1.5	—
{ animal products . . .	— 3.4	— 1.2	— 7.9	— 4.1

(a) Corrected for seasonal variation. — (b) Not corrected for seasonal variation.

EXCHANGE RATES

RELATION OF VARIOUS CURRENCIES TO THEIR PARITY WITH THE U. S. DOLLAR (1)

NATIONAL CURRENCIES	Parity	Actual Exchange Rates				Percentage deviation from parity with U.S. dollar: premium (+) or discount (—)			
		Mar. 17 1939	Mar. 10 1939	Mar. 3 1939	Feb. 24 1939	Mar. 17 1939	Mar. 10 1939	Mar. 3 1939	Feb. 24 1939
Germany: reichsmark . . .	40.332	40.111	40.115	40.114	40.114	— 0.5	— 0.5	— 0.5	— 0.5
Argentina: paper peso . . .	71.959	n.31.211	n.31.266	n.31.250	n.31.269	— 56.6	— 56.6	— 56.6	— 56.5
Belgium: belge . . .	23.542	16.822	16.826	16.823	16.824	— 28.5	— 28.5	— 28.5	— 28.5
Canada: dollar . . .	16.950	99.492	99.793	99.621	99.580	— 0.8	— 0.7	— 0.7	— 0.7
Denmark: crown . . .	100.000	45.374	20.894	20.937	20.934	— 0.5	— 0.2	— 0.4	— 0.4
Spain: peseta . . .	32.669	n. q.	n. q.	n. q.	n. q.	— 54.0	— 53.9	— 53.9	— 53.9
France: franc (4) . . .	6.633	2.646	2.651	2.649	2.649	— 60.1	— 60.0	— 60.1	— 60.1
Great Britain: £ sterling (2) . . .	8.2397	4.6808	4.6911	4.6875	4.6906	— 43.2	— 43.1	— 43.1	— 43.1
Hungary: pengo . . .	29.612	n.19.600	n.19.625	n.19.630	n.19.630	— 33.8	— 33.7	— 33.7	— 33.7
India: rupee . . .	61.798	35.022	35.136	35.050	35.066	— 43.3	— 43.1	— 43.3	— 43.3
Italy: lira . . .	8.911	5.260	5.260	5.260	5.260	— 41.0	— 41.0	— 41.0	— 41.0
Japan: yen . . .	5.263	2.720	2.720	2.735	2.718	— 0.1	— 0.1	— 0.1	— 0.1
Netherlands: florin . . .	84.396	27.270	27.324	27.305	27.318	— 67.7	— 67.6	— 67.6	— 67.6
Poland: zloty . . .	68.057	53.074	53.115	53.119	53.242	— 22.0	— 22.0	— 21.9	— 21.8
Romania: leu . . .	18.994	18.850	18.865	18.877	18.892	— 0.8	— 0.7	— 0.6	— 0.5
Sweden: crown . . .	1.013	n. 0.717	n. 0.719	n. 0.723	n. 0.728	— 29.2	— 29.0	— 28.6	— 28.1
Switzerland: franc . . .	45.374	24.099	24.149	24.130	24.149	— 46.9	— 46.8	— 46.8	— 46.8
Czechoslovakia: crown . . .	32.669	22.642	22.738	22.724	22.723	— 30.7	— 30.4	— 30.4	— 30.4
	5.016	n. q.	3.424	3.424	3.424	—	— 31.7	— 31.7	— 31.7
	3.512	n. q.	3.424	3.424	3.424	—	— 2.5	— 2.5	— 2.5

(1) Parities and current rates are both expressed in U. S. cents (the £ sterling is expressed in dollars). The dollar contains 0.88867 grams of fine gold, i. e. 40.94 % less than formerly. — (2) Former parity. — (3) New parity as from 31 March 1935. — (4) 1 Indochinese piastre = 10 francs; the actual rates vary only slightly from this. — (5) 97 1/2 Egyptian piastres = 1 £ sterling (fixed rate). — (6) New parity as from Oct. 5, 1936. — (7) New parity as from Oct. 10, 1936.

LATEST INFORMATION

TRADE

Statistics received too late for inclusion in the tables and statistics for February already available.

COUNTRIES		EXPORTS		IMPORTS		COUNTRIES		EXPORTS		IMPORTS	
PRODUCTS AND UNITS		1938	1937	1938	1937	PRODUCTS AND UNITS		1938	1937	1938	1937
MEXICO		Oct.	Oct.	Oct.	Oct.	IRAN (concluded)		Dec.	Dec.	Dec.	Dec.
Coffee 1000 centals		1,239	1,118	—	—	Wool 1000 lb.		0	68	0	0
						Butter " "		0	0	0	4
						Cheese " "		0	0	0	0
						Cacao " "		—	—	11	7
						Tea " "		0	0	1,380	1,027
						Coffee " "		0	0	110	55
COLOMBIA						BELGIAN CONGO					
Wheat 1000 centals		—	—	42	12	Coffee 1000 lb.		3,988	3,225	—	—
Wheat flour " "		—	—	2	1						
Barley " "		—	—	0	0	IVORY COAST					
Rice " "		—	—	7	18	Coffee 1000 lb.		2,368	417	—	—
Cotton " "		—	—	3	6						
Cacao " "		—	—	597	185	EGYPT					
						Wheat 1000 centals		0	169	0	0
MEXICO		Nov.	Nov.	Nov.	Nov.	Wheat flour " "		0	8	3	6
Coffee 1000 lb.		344	305	—	—	Barley " "		1	0	2	0
						Oats " "		—	—	0	0
URUGUAY						Maize " "		0	0	0	0
Wheat 1000 centals		20	0	0	68	Rice " "		483	264	0	0
Wheat flour " "		75	0	0	0	Linseed " "		2	3	0	0
Rice " "		—	—	0	1	Cotton " "		860	990	—	—
Linseed " "		89	35	—	—	Wool 1000 lb.		240	40	46	0
Wool (a) 1000 lb.		6,867	2,251	—	—	Butter " "		42	0	77	134
Wool (b) " "		1,429	529	—	—	Cheese " "		7	9	509	600
Cacao " "		—	—	106	143	Cacao " "		—	—	148	24
Tea " "		—	—	66	31	Tea " "		—	—	1,757	1,510
Coffee " "		—	—	591	562	Coffee " "		—	—	1,142	1,444
						MADAGASCAR					
IVORY COAST						Maize 1000 centals		11	2	0	0
Coffee 1000 lb.		1,735	150	—	—	Rice " "		16	17	0	0
						Cacao 1000 lb.		187	51	—	—
KENYA						Coffee " "		17,247	5,271	—	—
Coffee 1000 lb.		2,961	3,157	—	—						
UGANDA						GREECE		1939	1938	1939	1938
Coffee 1000 lb.		2,650	3,153	—	—	Jan.	Jan.	Jan.	Jan.		
TANGANYIKA						Wheat 1000 centals		0	0	361	744
Coffee 1000 lb.		2,044	3,366	—	—	Wheat flour " "		0	0	2	1
						Rye " "		0	0	0	0
NETHERLANDS INDIES: OUTER PROVINCES		Dec.	Dec.	Dec.	Dec.	Barley " "		0	0	50	0
Wheat flour 1000 centals		—	—	80	65	Oats " "		0	0	0	0
Rice " "		21	13	704	587	Maize " "		0	0	112	78
Butter " lb.		—	—	302	214	Rice " "		0	0	54	87
						Linseed " "		0	0	4	3
IRAN						Cotton " "		0	0	2	7
Wheat 1000 centals		0	0	0	0	Wool 1000 lb.		55	24	703	478
Wheat flour " "		0	0	0	0	Butter " "		—	—	121	33
Barley " "		4	39	0	0	Cheese " "		2	7	187	46
Rice " "		0	0	1	0	Cacao " "		—	—	198	123
Cotton " "		10	26	0	0	Tea " "		—	—	66	55
						Coffee " "		—	—	785	977

(a) Wool, greasy. — (b) Wool, scoured.

COUNTRIES PRODUCTS AND UNITS		EXPORTS		IMPORTS		COUNTRIES PRODUCTS AND UNITS		EXPORTS		IMPORTS	
		1939	1938	1939	1938			1939	1938	1939	1938
CHINA						FINLAND (concluded)					
		Jan.	Jan.	Jan.	Jan.			Feb.	Feb.	Feb.	Feb.
Wheat 1000 centals		26	0	0	0	Wool 1000 lb.		0	0	439	558
Wheat flour "		69	0	215	78	Butter "		2,430	2,650	0	0
Maize "		0	0	—	—	Cheese "		1,096	1,008	4	2
Rice "		24	1	319	884	Cacao "		—	—	57	31
Linseed "		0	2	—	—	Tea "		—	—	33	26
Cotton "		63	62	207	19	Coffee "		—	—	3,741	4,378
Wool 1000 lb.		152	134	—	—	HUNGARY					
Butter "		—	—	44	31	Wheat 1000 centals		1,699	461	0	0
Tea "		5,930	3,649	507	11	Wheat flour "		50	53	0	0
TURKEY						Rye "		34	347	0	0
Wheat 1000 centals		302	79	—	—	Barley "		6	24	0	0
Barley "		211	236	—	—	Oats "		0	0	0	0
Cotton "		6	11	—	—	Maize "		88	443	0	0
Wool (a) 1000 lb.		280	216	—	—	Rice "		0	0	27	12
Tea "		—	—	223	304	Linseed "		0	0	32	10
Coffee "		—	—	836	937	Cotton "		0	0	41	35
MADAGASCAR						Wool 1000 lb.		9	2	430	112
Maize 1000 centals		6	1	0	0	Butter "		333	875	0	0
Rice "		11	13	0	0	Cheese "		7	31	0	0
Cacao 1000 lb.		101	64	—	—	Cacao "		0	0	1,400	820
Coffee "		5,807	8,221	—	—	Tea "		0	0	73	35
TUNISIA						Coffee "		0	0	463	340
Wheat 1000 centals		176	166	0	1	NORWAY					
Wheat flour "		37	23	2	19	Wheat 100 centals		0	0	235	123
Barley "		0	79	2	0	Wheat flour "		0	0	19	31
Oats "		16	10	0	0	Rye "		0	0	109	185
Maize "		0	0	1	0	Barley "		0	0	24	32
Rice "		0	0	2	54	Oats "		0	0	1	0
Linseed "		0	0	0	0	Maize "		0	0	215	279
Wool 1000 lb.		146	139	20	69	Rice "		1	0	12	5
Butter "		0	0	139	236	Linseed "		0	0	54	20
Cheese "		0	7	181	218	Cotton "		0	0	10	5
Cacao "		—	—	0	0	Wool 1000 lb.		152	141	196	190
Tea "		—	—	359	340	Butter "		0	176	0	0
Coffee "		0	0	423	262	Cheese "		441	344	77	44
GERMANY						Cacao "		0	0	571	642
Wheat 1000 centals		0	0	1,019	2,872	Tea "		0	0	26	37
Wheat flour "		0	6	216	123	Coffee "		2	13	1,830	2,615
Rye "		0	0	149	70	NETHERLANDS					
Barley "		0	0	565	382	Wheat 1000 centals		5	0	846	952
Oats "		0	0	104	152	Wheat flour "		0	22	149	125
Maize "		0	0	172	2,355	Rye "		91	179	52	84
Rice "		24	31	561	317	Barley "		53	36	341	364
Linseed "		0	0	36	132	Oats "		81	42	30	298
Cotton "		0	0	528	627	Maize "		0	2	1,347	2,354
Wool { (a) 1000 lb.		13	0	34,981	29,271	Rice "		98	158	93	128
(b) "		0	0	1,911	1,951	Linseed "		31	28	1,062	1,053
Butter "		0	0	13,907	16,581	Cotton "		0	2	69	98
Cheese "		86	9	5,459	6,460	Wool { (a) 1000 lb.		128	227	595	904
Cacao "		0	0	18,318	11,400	(b) "		24	26	774	891
Tea "		4	9	1,627	917	Butter "		5,604	4,885	0	0
Coffee "		0	0	31,634	33,746	Cheese "		8,567	9,859	51	51
FINLAND						Cacao "		24	798	19,478	20,014
Wheat 1000 centals		0	0	22	59	Tea "		20	33	2,438	2,108
Wheat flour "		0	0	28	47	Coffee "		1,080	802	6,784	5,721
Rye "		0	0	9	5	POLAND-DANZIG					
Barley "		0	0	0	0	Wheat 1000 centals		43	0	0	45
Oats "		0	0	0	27	Wheat flour "		71	59	0	0
Maize "		9	0	27	198	Rye "		689	0	0	0
Rice "		—	—	10	16	Barley "		860	495	0	0
Linseed "		0	0	15	28	Oats "		123	50	0	0
Cotton "		0	0	28	14	Maize "		0	0	0	0
						Rice "		6	11	1	123
						Linseed "		0	0	0	0
						Cotton "		0	0	120	134

(a) Wool, greasy. — (b) Wool, scoured.

COUNTRIES PRODUCTS AND UNITS	EXPORTS		IMPORTS		COUNTRIES PRODUCTS AND UNITS	EXPORTS		IMPORTS	
	1939	1938	1939	1938		1939	1938	1939	1938
POLAND-DANZIG (concluded)					CZECHO-SLOVAKIA (concluded)				
Wool 1000 lb.	0	0	5,300	4,228	Rice 1000 centals	0	0	69	36
Butter "	1,986	2,394	0	0	Linseed "	0	0	17	14
Cheese "	7	0	31	13	Cotton "	1	4	151	165
Cacao "	—	—	1,437	1,378	Wool 1000 lb.	13	37	2,509	2,302
Tea "	0	0	408	302	Butter "	0	725	71	0
Coffee "	0	0	1,168	805	Cheese "	35	406	317	276
					Cacao "	0	0	2,035	1,415
					Tea "	0	0	82	79
					Coffee "	0	0	1,493	1,982
ROMANIA					CANADA				
Wheat 1000 centals	1,947	1,364	0	0	Wheat 1000 centals	3,448	1,703	7	148
Wheat flour "	3	0	0	0	Wheat flour "	570	534	11	9
Rye "	15	71	0	0	Rye "	0	5	0	6
Barley "	54	249	0	0	Barley "	310	388	0	0
Maize "	1,401	0	0	0	Oats "	154	96	198	380
					Maize "	0	0	52	3
UNITED KINGDOM					Rice "	2	1	26	16
Wheat 1000 centals	25	69	10,958	8,018	Linseed "	1	1	33	65
Wheat flour "	188	155	679	751	Cotton "	—	—	60	109
Barley "	—	0	1,226	1,438	Wool 1000 lb.	309	467	1,618	1,268
Oats "	—	3	250	141	Butter "	2,421	26	0	941
Maize "	194	229	4,900	5,633	Cheese "	895	419	95	93
Rice "	6	7	89	80	Cacao "	—	—	1,887	1,283
Linseed "	0	0	643	582	Tea "	—	—	2,546	2,355
Cotton "	43	37	737	1,403	Coffee "	62	13	3,631	2,767
Wool 1000 lb.	30,245	26,310	90,782	71,979					
Butter "	1,567	1,173	75,802	96,153	ARGENTINA				
Cheese "	326	328	21,881	30,516	Wheat 1000 centals	4,456	6,064	—	—
Cacao "	919	732	51,586	19,853	Wheat flour "	161	129	—	—
Tea "	5,474	5,697	28,169	32,446	Rye "	44	1	—	—
Coffee "	545	855	11,623	10,673	Barley "	659	1,301	—	—
					Oats "	568	1,585	—	—
SWEDEN					Maize "	3,123	443	—	—
Wheat 1000 centals	107	292	29	44	Linseed "	3,593	2,096	—	—
Wheat flour "	0	2	0	0	Cotton "	18	0	—	—
Rye "	0	0	11	0	Wool { (a) 1000 lb.	30,358	18,629	—	—
Barley "	1	0	0	0	Wool { (b) "	3,494	3,219	—	—
Oats "	7	14	0	11	Butter "	2,050	227	—	—
Maize "	0	0	73	495	Cheese "	340	243	—	—
Rice "	—	—	5	34					
Linseed "	—	—	84	6	BRAZIL				
Cotton "	—	—	86	90	Coffee 1000 lb.	155,623	169,977	—	—
Wool 1000 lb.	—	—	2,826	1,162					
Butter "	3,999	5,353	0	0	SIAM				
Cheese "	—	—	384	154	Rice 1000 centals	3,193	3,412	—	—
Cacao "	—	—	1,206	1,358					
Tea "	—	—	90	88	GOLD COAST				
Coffee "	—	—	8,128	7,401	Cacao 1000 lb.	118,106	7,416	—	—
SWITZERLAND					AUSTRALIA				
Wheat 1000 centals	0	0	758	781	Wheat 1000 centals	4,601	6,212	0	0
Rye "	0	0	13	18	Wheat flour "	1,074	1,295	0	0
Barley "	0	0	282	247	Barley "	312	404	0	0
Oats "	0	0	508	726	Oats "	3	14	0	0
Maize "	0	0	161	250	Maize "	0	0	0	0
Rice "	0	0	35	32	Rice "	19	10	2	2
Cotton "	0	0	63	63	Linseed "	0	0	13	2
Wool 1000 lb.	18	7	1,764	736	Cotton "	0	0	13	8
Butter "	2	0	9	73	Wool { (a) 1000 lb.	91,904	92,211	1,034	888
Cheese "	3,645	3,170	366	231	Wool { (b) "	4,947	5,152	9	7
Cacao "	0	2	1,859	2,626	Butter "	12,269	25,669	2	0
Tea "	0	2	165	112	Cheese "	2,207	3,188	13	9
Coffee "	0	0	2,628	2,284	Cacao "	0	0	1,376	1,329
					Tea "	33	24	3,644	2,985
					Coffee "	4	4	262	245
CZECHO-SLOVAKIA									
Wheat 1000 centals	56	163	0	238					
Wheat flour "	171	44	0	1					
Rye "	0	0	0	299					
Barley "	197	73	0	0					
Oats "	54	117	2	1					
Maize "	0	38	219	39					

(a) Wool, greasy. — (b) Wool, scoured.

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MONTHLY CROP REPORT AND AGRICULTURAL STATISTICS

The following explanations refer to crop conditions quoted in the crop notes and in the tables. — Crop condition according to the system of the country: Germany, Hungary, Luxemburg and Czechoslovakia: 1 = excellent, 2 = good, 3 = average, 4 = bad, 5 = very bad; Finland: 8 = very good, 6 = above the average, 5 = average; France: 100 = excellent, 70 = good, 60 = fairly good, 50 = average, 30 = bad; Estonia, Latvia, Lithuania, Poland, Romania and Sweden: 5 = excellent, 4 = good, 3 = average, 2 = bad, 1 = very bad; Netherlands: 90 = excellent, 70 = good, 60 = fairly good, 50 = below average; Portugal: 100 = excellent, 80 = good, 60 = average, 40 = bad, 20 = very bad; Switzerland: 100 = excellent, 90 = very good, 75 = good, 60 = fairly good, 50 = average, 40 = rather bad, 30 = bad, 10 = very bad; U. S. S. R.: 5 = good, 4 = above the average, 3 = average, 2 = below average, 1 = bad; Canada: 100 = crop condition promising a yield equivalent to the average yield of a long series of years; United States: 100 = crop condition which promises a normal yield; Egypt: 100 = crop condition which promises a yield equal to the average yield of the last five years. — For other countries the system of the Institute is employed: 100 = crop condition which promises a yield equal to the average of the last ten years.

See latest information at the end of the Crop Report.

VEGETAL PRODUCTION

The World Wheat Trade in 1938-39 and 1939 Wheat Crop Prospects.

Of the various countries which sent to the Institute during April revised estimates of their 1938 wheat production, none shows important differences compared with the previous returns. The first estimates, however, of certain minor producing countries have been received, namely Albania, Irak, Palestine, Trans-Jordan and New Zealand. These figures are all approximately as large as those which had been estimated from general reports dispatched about harvest time. Albania, Irak and New Zealand have had crops about equal to those of the previous year, while Trans-Jordan and more especially Palestine report poor crops.

The estimate of world wheat production in 1938 and the statistical position in regard to world exportable supplies and import requirements in the 1938-39 season, of which a general revision was published last month, have not been affected, except to a negligible degree, by these latest revisions and we do not consider it necessary to re-examine these figures.

The volume of international trade in February, from the latest official statistics of the principal exporting and importing countries, shows a slight decline on the average of the preceding months, the fall being mostly due to lower demand by the importing countries of the European continent. Compared with the corresponding month of last year, world exports in February show only a slight change. The aggregate exports of the first seven months of the season (August 1-February 28) are slightly (34 million bushels) higher than last season, but are very small in comparison with existing exportable stocks. The

in revising our estimate of the probable import requirements of Europe we raised our estimate to 430 million bushels, against our October forecast of 415 millions. To reach this total, the net imports of the European importing countries in the remainder of the season from March 1 to July 31, 1939 would have to

*Net Imports of Wheat into Europe (including flour in terms of wheat) *.*
(million bushels).

IMPORTS BY MONTHS				IMPORTS BY COUNTRIES			
Months	1938-39	1937-38	1936-37	Importing Countries	Seven months: August-February		
					1938-39	1937-38	1936-37
August	40	35	25	United Kingdom . .	122	109	116
September	36	29	29	Ireland	9	8	7
October	42	33	32	Total	131	117	123
November	39	34	33	Belgium	19	24	24
December	32	33	36	Netherlands	16	14	12
January	24	28	25	Germany and Austria	33	27	6
February	30	32	37	France	2	9	4
March . . . . .	...	35	43	Switzerland	11	9	10
April . . . . .	...	33	39	Greece	6	8	12
May . . . . .	...	34	49	Italy	4	1	16
June . . . . .	...	37	49	Scand. & Baltic States (6)	11	9	10
July . . . . .	...	40	41	Other countries (7) .	10	6	0
Total August-February	243	(2) 224	(4) 217	Total Continent . . .	112	(2) 107	(4) 94
Total Year	(1) 430	(3) 403	(5) 438	Total Europe	243	(2) 224	(4) 217

* Aggregate net imports of normal importing countries, after deduction of exports, if any.

(1) Forecast March-October 1939. — (2) After deduction of net exports of 1 million bushels from Sweden and of 1 million bushels of net exports from Czecho-Slovakia. — (3) After deduction of net exports of 0.7 million bushels from Sweden. — (4) After deduction of net exports of 0.4 million bushels from Sweden and 0.4 million bushels from Czecho-Slovakia. — (5) After deduction of net exports of 1.5 million bushels from Czecho-Slovakia. — (6) Denmark, Estonia, Finland, Latvia, Norway and Sweden. — (7) Czecho-Slovakia, Spain, Portugal, Albania, Malta, etc.

average about 37 million bushels per month, against average imports of 35 millions in the first seven months.

The relatively poor demand in Europe in this first part of the season has been due particularly to the continental countries, the imports of which only exceeded those of last year owing to the large purchases made by Germany. The imports of the United Kingdom, in spite of the programme of building up large reserve stocks, were only 13 million bushels higher than last season.

The Condition of standing Crops.

The condition of winter crops does not appear to be at all good in several of the important wheat growing countries of Europe. The severe frosts without any snow cover at the beginning of the winter, the subsequent excessive moisture due to heavy precipitation followed by a thaw and the sudden return

at the middle of March of winter conditions in important producing areas of France, Germany, Poland, Belgium and the Netherlands, did serious damage to crops making resowing on a vast scale necessary. The season has not been favourable for these new sowings, which have been retarded by the moist condition of the soil and where sowings were done germination was uneven. Rye appears to have resisted the bad conditions better than wheat. Prospects for these countries as a whole are pessimistic and much smaller wheat crops than last year are anticipated. The situation, however, is fairly satisfactory in most of the countries of southeastern Europe, particularly Romania and Bulgaria. Crops in Hungary have made very good growth, but towards the end of April were in need of rain. In Yugoslavia also crops were suffering from drought.

In Italy wheat crops passed the winter well and at the beginning of the spring their condition was satisfactory, although bad weather in the second half of March retarded growth and did a certain amount of damage, which does not seem, however, on the whole, to have been considerable.

In the U. S. S. R. the main features of the winter were a lack of snow and low temperatures, which froze the ground to a great depth, even in the south. Conditions, therefore, do not seem to have been favourable for winter crops. Nevertheless, Government reports at the beginning of April stated that the condition of winter cereals was good. The sowing of spring cereals, after being retarded in the second half of March by unfavourable weather, was actively resumed in the first decade of April in good conditions as regards temperature and soil humidity. On April 15 sowing was definitely in advance of last year.

In the United States, the provisional forecast, made on April 1, of winter wheat production gave a figure of 549 million bushels, which is 20 per cent. lower than last year's production (687 million bushels), but 10 per cent. higher than the previous five-year average. The first half of April was unfavourable for winter crops, owing to cold weather and excessive rain. The weather was better however in the third week. The work of sowing spring cereals has been hampered by the unfavourable season and has made rather slower progress than last year. According to the inquiry into farmers' planting intentions, the prospective acreage to be sown to spring wheat in 1939 is 19.5 million acres, or 17 per cent. less than last year's sown acreage and 13 per cent. below the previous five-year average. Soil moisture conditions, which are a very important factor in determining good spring wheat crops, appear to be favourable at the first stage of growth.

In Canada also preparations for wheat sowing have made slow progress, owing to the continuance of wintry weather as late as the middle of April. Sub-soil moisture reserves are abundant in almost all areas. It is expected in some quarters that there will be a slight decrease in the acreage, owing to the low level of prices.

In India, the crop is reported to be considerably smaller than last year's though the acreage is only slightly contracted. The prolonged drought during the winter is mainly responsible for the poor yield forecast in the first official estimate, which was recently published. Production in Punjab, which produces about a third of the total crop of India, is also considerably less than last year's.

Wheat Production in India.

(Million bushels).

Years of harvest	Production in the Punjab		Total production of India	
	1st estimate	Final estimate	1st estimate	Final estimate
1930	146	157	368	391
1931	135	133	347	347
1932	125	118	348	337
1933	110	122	241	353
1934	131	121	371	351
1935	132	131	379	363
1936	125	131	362	352
1937	146	142	382	364
1938	140	150	380	402
1939	124	—	344	—

In Japan crop condition on April 1 was about normal. In the near-eastern countries the condition of cereals was satisfactory in almost all parts.

In North Africa crop prospects are much better than last year. In Egypt maturation is taking place in favourable conditions and crop condition is good. The acreage is slightly larger. In most parts of Algeria, Morocco and Tunisia, as a result particularly of the heavy rainfall of the spring, wheat promised a very satisfactory yield on considerably larger areas.

In the Southern Hemisphere, rain in Argentina enabled a good preparation of the land for sowing. In Australia, heavy rain fell in the eastern States, while in Western Australia and South Australia there was great need of rain.

Current information from various countries on Wheat, Rye, Barley and Oats.**Europe.**

Bulgaria: Cold and wet weather prevailed during March. The winter cereals came through the winter in good conditions. Spring sowings began, the work being favoured by ample moisture.

Estonia: The day temperature in March oscillated around freezing point. The night temperature throughout the country fell to 27° F and even to 21° F.

Finland: In March the temperature was 3 or 4 degrees above normal. Rainfall was about $\frac{3}{4}$ inch.

France: Weather in March was cold everywhere with heavy showers and snow in areas of high and medium altitude. These conditions were quite exceptional for the south and delayed growth and field work, especially spring sowings.

At the end of the month, wheat was a very uneven crop and rather unsatisfactory on the whole. In the north and around Paris wheat was suffering from cold and an excess of moisture. The sowings made on light soils to replace those destroyed by frost were thin while on heavy soils sprouting was poor as a result of considerable rotting. In some areas, farmers will have to resow a third time. On the whole, except for sowings which had not been affected by the December frosts, there is a

serious delay in growth and mediocre yields are in prospect. In other places—the central, western, southwestern, southern, east central and eastern areas—the excess of moisture has delayed absorption of nitrogenous fertilisers and wheat has lost colour on poorly drained lands but the situation is not compromised in these areas. Though growth and tillering were delayed, winter wheat is comparatively satisfactory but growth of the newly sown wheat is slow and difficult.

Winter barley had withstood the frosts and showed vigorous growth at the end of March. Winter oats, in places where they had not been destroyed by the December frosts, were affected by unfavourable weather. As for the spring cereals, bad weather seriously impeded sowings and made germination difficult.

The first half of April was, on the whole, much more favourable, as weather was fine and mild and beneficial rain fell in the north and the Paris district in the middle of the month after a period of fine weather.

Hungary: During the four weeks from March 4 to April 1 the weather was rather cold. In most parts of the country precipitation was above average, and over a large area was even double the average. Between March 11 and 16 precipitation was mainly in the form of snow. Wheat, rye and barley wintered well and at the beginning of April crops were thick and of a good green colour. Growth had been retarded by cold weather and at the end of the month more warmth was needed. Damage by frost and insects was slight. At the beginning of April the sowing of spring cereals was still in progress. The growth of early seeds was retarded by the cold.

(Telegram of April 24): The seedlings have grown well but need rain.

Ireland: The weather in the first ten days of March was cold and unsettled, but during the remainder of the month was fine, though still cold. A fair proportion of spring cereals were sown under reasonably good conditions.

Italy: In the first fortnight of March the weather was variable and not at all favourable, but the crop condition of cereals was on the whole good. In some parts of North Italy, following drought and strong winds, rain was needed. The sowing of spring wheat and oats was in progress. In the second half of the month also the weather was very variable. Some damage to wheat and other winter cereals by frost and strong wind was reported. The need for rain was universal, but crops damaged were on the whole only a very small proportion of the total.

Latvia: The temperature in March was about normal for the time of year. About the middle of the month there was a colder spell for several days. Precipitation was on the whole below normal. On the hills there was a snow cover, but only for a few days and only 1 inch deep.

Lithuania: In March the temperature remained at several degrees below freezing point. Precipitation was heavy. A fairly thick snow cover remained throughout the month.

Luxemburg: The severe winter has seriously damaged crops in all parts of the country and winter cereals, particularly wheat, have had to be resown on a large scale.

Poland: According to the Central Statistical Office, the winter of 1938-39 was rather unfavourable for cereals, particularly wheat. There were severe frosts without snow in the second half of December. Snow fell at the end of that month but melted in the first half of January owing to a rise in temperature and heavy rain. These conditions continued up to the end of February. The resultant increase in moisture seriously damaged cereals, especially those on low-lying lands.

Variable weather in the first fortnight of March with snow, intermittent rains, cold winds and sharp changes between day and night temperatures aggravated, the poor

COUNTRIES	AREA					CROP CONDITION (%)									
	1939	1938	Average 1933 to 1937	% 1939		I-IV-1939			I-XII-1938			I-IV-1938			
				1938 = 100	Aver. = 100	a)	b)	c)	a)	b)	c)	a)	b)	c)	
															Thousand acres
WINTER WHEAT															
Germany (1) . . .	4,714	4,577	4,866	103.0	96.9	—	—	3.1	2.4	—	—	—	—	2.4	—
Belgium	446	428	391	104.2	113.9	—	—	—	—	—	—	—	—	(e)	—
Bulgaria	3,025	2,874	2,961	105.3	102.2	—	—	—	—	—	—	—	—	—	—
France (2)	12,249	12,353	12,790	99.2	95.8	—	—	—	—	—	—	—	—	—	—
Greece	2,320	2,062	1,989	112.5	116.7	—	—	—	(3) 73	—	—	—	—	—	—
Italy	12,635	12,151	12,364	104.0	102.2	—	—	—	—	—	—	—	—	—	—
Latvia	180	167	184	108.0	98.1	—	—	—	(3) 3.8	—	—	—	—	—	—
Lithuania	361	356	389	101.6	93.0	—	—	—	(4) 3.2	—	—	—	—	—	—
Luxemburg	57	57	41	99.8	139.6	—	—	4.1	—	—	—	—	—	2.2	—
*Netherlands . . .	—	276	301	—	—	—	—	—	—	—	—	—	—	(5) 107	—
Poland	3,835	3,801	3,719	100.9	103.1	—	(6) 3.0	—	(5) 3.4	—	—	—	—	(6) 3.4	—
Romania	8,649	8,797	7,472	98.3	115.8	—	—	—	—	—	—	—	—	—	—
United Kingdom:															
Engl. and Wales .	1,664	1,807	1,726	92.1	96.4	—	—	—	—	—	—	—	—	—	—
*Switzerland . . .	—	151	142	—	—	83	—	—	—	—	—	—	—	83	—
Yugoslavia	5,236	5,335	5,282	98.1	99.1	—	—	—	—	—	—	—	—	—	—
Total Europe . . .	55,371	54,765	54,174	101.1	102.2	—	—	—	—	—	—	—	—	—	—
Canada	799	815	669	98.0	119.5	—	—	—	—	—	—	(4) 98	—	—	—
United States (10)	46,173	56,355	48,703	81.9	94.8	—	—	—	—	—	—	72	—	—	—
(7) 19,505	23,515	22,507	82.9	86.7	—	—	—	—	—	—	—	—	—	—	—
Total America & .	66,477	80,685	71,879	82.4	92.5	—	—	—	—	—	—	—	—	—	—
India (8)	32,999	33,722	33,676	97.9	98.0	—	—	—	—	—	—	—	—	—	—
*Japan	—	1,777	1,637	—	—	—	(f)	—	—	—	—	—	—	(f)	—
Egypt	1,503	1,470	1,443	102.2	104.1	102	—	—	—	—	—	—	—	102	—
Tunisia	2,125	1,667	1,876	127.5	113.3	—	—	—	—	—	—	—	—	—	—
Total Africa . . .	3,628	3,137	3,319	115.6	109.3	—	—	—	—	—	—	—	—	—	—
GRAND TOTAL & .	158,475	172,309	163,048	92.0											

COUNTRIES	AREA					CROP CONDITION †													
	1939	1938	Average 1933 to 1937	% 1939															
				1938 = 100	Aver. = 100	I-IV-1939			I-XII-1938			I-IV-1938							
						a)	b)	c)	a)	b)	c)	a)	b)	c)					
Thousand acres																			
Canada	596	582	617	102.4	96.6	—	—	—	—	—	—	(4) 91	—	—	—	—	—	—	—
United States . .	7,171	6,671	6,110	107.5	117.4	79	—	—	—	—	—	76	81	—	—	—	—	—	—
Total America . .	7,767	7,253	6,727	107.1	115.4	—	—	—	—	—	—	—	—	—	—	—	—	—	—
GRAND TOTAL . .	38,691	38,530	38,008	100.4	101.8	—	—	—	—	—	—	—	—	—	—	—	—	—	—
MESLIN																			
Belgium	4	4	8	95.3	52.9	—	—	—	—	—	—	—	e)	—	—	—	—	—	—
Bulgaria	196	203	206	96.7	95.1	—	—	—	—	—	—	—	—	—	—	—	—	—	—
France (2)	162	162	169	99.9	96.0	—	—	—	—	—	—	(3) 76	—	—	—	—	—	—	—
Greece	196	148	136	137.0	144.3	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Luxemburg	4	4	6	95.8	61.9	—	—	—	—	—	3.3	—	—	—	—	—	2.1	—	—
Switzerland	—	18	17	—	—	86	—	—	—	—	—	—	85	—	—	—	—	—	—
Yugoslavia	143	137	133	104.0	107.2	—	—	—	—	—	—	—	—	—	—	—	—	—	—

† See explanation according to the various systems, page 303. — * Countries not included in the totals. — § Including spring crops of the United States. — a) Above the average. — b) Average. — c) Below the average. — d) Very good. — e) Good. — f) Average. — g) Bad. — h) Very bad. — s) Spring crop. — w) Winter crop. — (1) Not including Austria. — (2) Acreage sown up to 1 January. — (3) 1 January 1939. — (4) 1 November 1938. — (5) Middle of the month. — (6) Middle of the previous month. — (7) Farmers' intentions to plant as at March 1, 1939. — (8) Fourth estimate.

condition of the crops. During this period frost and snow prevailed in the north where fields were again entirely snow-covered at mid-March.

Rye was in better condition in the middle of March in southern districts and there was an improvement in the condition of wheat in central and western districts.

Romania: The last week of March was cold and wet. The crop condition of winter cereals remained good or very good in the first half of April. The preparation of the land for sowing of spring cereals was retarded or interrupted by the rain and cold. At the middle of April the sowing of barley and oats was in full swing in very favourable weather.

United Kingdom: The weather in March was variable. After a few days of mild weather, there was a spell of cold north and east winds over most of the country with local snow or sleet. Towards the end of the month warmer conditions returned to the south. There was a marked deficiency of sunshine in England, and more than average rainfall in the east. Wheat on the whole was satisfactory though poor in colour in some areas, and more sun was needed in parts of Scotland. Oats and barley made moderate progress, but patching and re-sowing were necessary in a number of districts.

It is believed that the acreage under winter wheat in Scotland may show a decrease on last year.

Switzerland: Although sown rather late in some districts, cereals have on the whole wintered well without any serious damage. In fact, in many districts rye is even

Area and Crop Condition of Wheat, Rye and Meslin.

COUNTRIES	AREA						CROP CONDITION (%)								
	1939	1938	Average 1933 to 1937	% 1939			I-IV-1939			I-XII 1938			I-IV-1938		
				1938 = 100	Aver. = 100		a)	b)	c)	a)	b)	c)	a)	b)	c)
WINTER WHEAT															
Germany (1) . . .	4,714	4,577	4,866	103.0	96.9	—	—	3.1	2.4	—	—	2.4	—	—	—
Belgium	446	428	391	104.2	113.9	—	—	—	—	—	—	(c)	—	—	—
Bulgaria	3,025	2,874	2,961	105.3	102.2	—	—	—	—	—	—	—	—	—	—
France (2)	12,249	12,353	12,790	99.2	95.8	—	—	—	—	(3) 73	—	—	—	—	—
Greece	2,320	2,062	1,989	112.5	116.7	—	—	—	—	—	—	—	—	—	—
Italy	12,635	12,151	12,364	104.0	102.2	—	—	—	—	—	—	—	—	—	—
Latvia	180	167	184	108.0	98.1	—	—	—	—	(3) 3.8	—	—	—	—	—
Lithuania	361	356	389	101.6	93.0	—	—	—	—	(4) 3.2	—	—	—	—	—
Luxemburg	57	57	41	99.8	139.6	—	—	4.1	—	—	—	—	—	2.2	—
*Netherlands . . .	—	276	301	—	—	—	—	—	—	—	—	—	—	(5) 107	—
Poland	3,835	3,801	3,719	100.9	103.1	—	(6) 3.0	—	(5) 3.4	—	—	—	—	(6) 3.4	—
Romania	8,649	8,797	7,472	98.3	115.8	—	—	—	—	—	—	—	—	—	—
United Kingdom:															
Engl. and Wales .	1,664	1,807	1,726	92.1	96.4	—	—	—	—	—	—	—	—	—	—
*Switzerland . . .	—	151	142	—	—	83	—	—	—	—	—	—	83	—	—
Yugoslavia	5,236	5,335	5,282	98.1	99.1	—	—	—	—	—	—	—	—	—	—
Total Europe . . .	55,371	54,765	54,174	101.1	102.2	—	—	—	—	—	—	—	—	—	—
Canada	799	815	669	98.0	119.5	—	—	—	—	—	—	(1) 98	—	—	—
United States (iv) (s)	46,173 (7) 19,505	56,355 23,515	48,703 22,507	81.9 82.9	94.8 86.7	—	—	—	—	—	—	72	—	—	—
Total America § .	66,477	80,685	71,879	82.4	92.5	—	—	—	—	—	—	—	—	—	—
India (8)	32,999	33,722	33,676	97.9	98.0	—	—	—	—	—	—	—	—	—	—
*Japan	—	1,777	1,637	—	—	—	(1)	—	—	—	—	—	(1)	—	—
—															
Egypt	1,503	1,470	1,443	102.2	104.1	102	—	—	—	—	—	102	—	—	—
Tunisia	2,125	1,667	1,876	127.5	113.3	—	—	—	—	—	—	—	—	—	—
Total Africa . . .	3,628	3,137	3,319	115.6	109.3	—	—	—	—	—	—	—	—	—	—
GRAND TOTAL § .	158,475	172,309	163,048	92.0	97.2	—	—	—	—	—	—	—	—	—	—
WINTER RYE															
Germany (1) . . .	10,186	10,410	11,009	97.8	92.5	2.8	—	—	2.3	—	—	2.3	—	—	—
Belgium	375	381	409	98.5	91.7	—	—	—	—	—	—	—	—	(d)	—
Bulgaria	423	436	449	97.1	94.2	—	—	—	—	—	—	—	—	—	—
France (2)	-1,604	1,621	1,671	98.9	96.0	—	—	—	—	(3) 75	—	—	—	—	—
Greece	155	171	175	90.9	88.5	—	—	—	—	—	—	—	—	—	—
Latvia	724	703	654	103.0	110.7	—	—	—	—	(3) 3.7	—	—	—	—	—
Lithuania	1,278	1,296	1,227	98.6	104.1	—	—	—	—	(4) 3.3	—	—	—	—	—
Luxemburg	18	18	19	99.2	95.8	2.6	—	—	—	—	—	—	—	2.0	—
*Netherlands . . .	—	585	501	—	—	—	—	—	—	—	—	—	—	(5) 113	—
Poland	14,689	14,515	14,165	101.2	103.7	(6) 3.4	—	—	(5) 3.6	—	—	—	—	(6) 3.6	—
Romania	939	1,177	964	79.8	97.4	—	—	—	—	—	—	—	—	—	—
*Switzerland . . .	—	34	36	—	—	81	—	—	—	—	—	—	84	—	—
Yugoslavia	533	549	539	97.1	98.8	—	—	—	—	—	—	—	—	—	—
Total Europe . . .	30,924	31,277	31,281	98.9	98.8	—	—	—	—	—	—	—	—	—	—

COUNTRIES	AREA						CROP CONDITION †												
	1939	1938	Average 1933 to 1937	% 1939															
				1938 = 100	Aver. = 100	I-IV-1939			I-XII-1938			I-IV-1938							
						a)	b)	c)	a)	b)	c)	a)	b)	c)					
Thousand acres																			
Canada	596	582	617	102.4	96.6	—	—	—	—	—	(4) 91	—	—	—	—	—	—	—	—
United States . .	7,171	6,671	6,110	107.5	117.4	79	—	—	—	—	76	81	—	—	—	—	—	—	—
Total America . .	7,767	7,253	6,727	107.1	115.4	—	—	—	—	—	—	—	—	—	—	—	—	—	—
GRAND TOTAL . .	38,691	38,530	38,008	100.4	101.8	—	—	—	—	—	—	—	—	—	—	—	—	—	—
MESLIN																			
Belgium	4	4	8	95.3	52.9	—	—	—	—	—	—	e)	—	—	—	—	—	—	—
Bulgaria	196	203	206	96.7	95.1	—	—	—	—	—	—	—	—	—	—	—	—	—	—
France (2)	162	162	169	99.9	96.0	—	—	—	—	—	(3) 76	—	—	—	—	—	—	—	—
Greece	196	148	136	137.0	144.3	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Luxemburg	4	4	6	95.8	61.9	—	—	—	—	3.3	—	—	—	—	—	2.1	—	—	—
Switzerland	—	18	17	—	—	86	—	—	—	—	—	—	—	—	—	85	—	—	—
Yugoslavia	143	137	133	104.0	107.2	—	—	—	—	—	—	—	—	—	—	—	—	—	—

† See explanation according to the various systems, page 303. — * Countries not included in the totals. — § Including spring crops of the United States. — a) Above the average. — b) Average. — c) Below the average. — d) Very good. — e) Good. — f) Average. — g) Bad. — h) Very bad. — s) Spring crop. — w) Winter crop. — (1) Not including Austria. — (2) Acreage sown up to 1 January. — (3) 1 January 1939. — (4) 1 November 1938. — (5) Middle of the month. — (6) Middle of the previous month. — (7) Farmers' intentions to plant as at March 1, 1939. — (8) Fourth estimate.

condition of the crops. During this period frost and snow prevailed in the north where fields were again entirely snow-covered at mid-March.

Rye was in better condition in the middle of March in southern districts and there was an improvement in the condition of wheat in central and western districts.

Romania: The last week of March was cold and wet. The crop condition of winter cereals remained good or very good in the first half of April. The preparation of the land for sowing of spring cereals was retarded or interrupted by the rain and cold. At the middle of April the sowing of barley and oats was in full swing in very favourable weather.

United Kingdom: The weather in March was variable. After a few days of mild weather, there was a spell of cold north and east winds over most of the country with local snow or sleet. Towards the end of the month warmer conditions returned to the south. There was a marked deficiency of sunshine in England, and more than average rainfall in the east. Wheat on the whole was satisfactory though poor in colour in some areas, and more sun was needed in parts of Scotland. Oats and barley made moderate progress, but patching and re-sowing were necessary in a number of districts.

It is believed that the acreage under winter wheat in Scotland may show a decrease on last year.

Switzerland: Although sown rather late in some districts, cereals have on the whole wintered well without any serious damage. In fact, in many districts rye is even

too thick. Wheat and spelt show good growth. Local damage by rodents and slugs is reported. The heavy snowfalls of March considerably retarded spring sowings so that in many areas cereals had not been sown by the end of March. However, sufficient moisture for spring sowing seems assured. The crop condition of spelt on April 1, 1939, was 83, in the system of the country, against 85 on that date last year.

Yugoslavia: The winter has on the whole been favourable for winter cereals, sowings of which were carried out in good conditions. The absence of floods, which commonly occur at this time of year, considerably reduced the extent of damage. But drought in the south of Sava and the Danube valley affected the condition of winter cereals.

U. S. S. R.: According to recently published official statistics, the acreage under wheat in the U. S. S. R. in 1937 was 102,300,000 acres against an average of 88,437,000 acres in 1932 to 1936. Total wheat production was respectively 975,300,000 centals (1,625,500,000 bushels) and 617,800,000 centals (1,029,700,000 bushels), giving yields per acre of 15.9 and 11.6 bushels respectively.

The dry summer and autumn of last year, the winter with little snow in most of the southeast and south, the low temperature of the winter which froze the ground to a great depth and the rather cold spring with changes in temperature, made it necessary to sow cereals this spring as rapidly as possible. But sowing was inevitably rather slow up to the end of March in view of unfavourable weather conditions.

In the first decade of March the weather was mild, but in the second and third decades the temperature again fell. In some areas there were rather heavy snow falls and the snow line had again moved to the south. In the first decade of April the weather was mild in the southeast and south, where sowing was resumed so rapidly that by April 10 the acreage sown was even higher than at the same date last year.

In the north the weather in the first decade of April was cold. At the beginning of the second decade the snow line passed approximately through Smolensk, Kazan and Perm, continuing also through the Asiatic Territory of the Union. The snow was still very deep in the north (Voloyda, Archangel).

The ground has thawed slowly. At the beginning of the second decade of April, in the centre there were still areas where the ground was frozen to a depth of from 2 to 3 feet and in the west and northwest from 1 to 1 ½ feet. In the south (Ukraine, North Caucasus) the temperature of the soil was 50° to 55° F at a depth of 4 to 6 inches.

In this period of April the weather over the greater part of Ukraine, the Volga region, Crimea and North Caucasus was fine with little precipitation, (up to ½ inch). Measurements of soil humidity made by meteorological stations, showed that in most parts of the south moisture reserves are normal — 1,600 cubic metres per hectare. These reserves ensure a good growth of plants in the south of Ukraine, in the north of the Rostov area and in the Volga region where reserves varied between 800 and 1,200 m³.

In the first decade of April there was heavy precipitation (1 to 1 ½ inches), in the centre mainly in the form of snow, and soil moisture reserves were augmented.

The sowing of spring cereals, which was actively resumed in the south and south-east in the first decade of April was carried out in favourable conditions as regards temperature and soil moisture. In the south of Ukraine, in the province of Rostov and in North Caucasus spring cereals are growing well, winter cereals are in good condition. According to 75 per cent. of the meteorological stations of Ukraine, the crop condition of winter cereals was good or excellent in the first decade of April, while the remaining stations recorded it as satisfactory.

In the Central Asian Republics spring cereals are growing well.

Area and Crop Condition of Barley and Oats.

COUNTRIES	AREA					CROP CONDITION †												
	1939	1938	Average 1933 to 1937	% 1939														
				1938 = 100	Aver. = 100	I-IV-1939			I-XII-1938			I-IV-1938						
Thousand acres																		
BARLEY																		
Germany (1) . . . (w)	1,347	1,279	937	105.3	143.8	—	—	3.6	2.4	—	—	(1)2.4	—	—				
Belgium (w)	58	58	70	99.0	82.3	—	—	—	—	—	—	(2)	—	—				
Bulgaria (w)	461	431	445	106.8	103.5	—	—	—	—	—	—	—	—	—				
France (2) (w)	503	475	448	106.0	112.3	—	—	—	(3)72	—	—	—	—	—				
Greece (w)	518	515	525	100.7	98.7	—	—	—	—	—	—	—	—	—				
Luxembourg (w)	4	5	0	96.1	—	—	—	3.3	—	—	—	—	—	—				
*Netherlands (w)	—	55	33	—	—	—	—	—	—	—	—	4)109	—	—				
Poland (w)	52	52	69	99.8	74.8	—	—	—	—	—	—	4)3.3	—	—				
Romania (w)	175	199	199	87.6	87.8	—	—	—	—	—	—	—	—	—				
*Switzerland (w)	—	3	3	—	—	81	—	—	—	—	—	—	85	—				
Yugoslavia (w)	564	595	601	94.9	94.0	—	—	—	—	—	—	—	—	—				
Total Europe	3,682	3,609	3,294	101.9	111.9	—	—	—	—	—	—	—	—	—				
United States	(5)13,219	(6)11,334	(6)12,322	116.6	107.3	—	—	—	—	—	—	—	—	—				
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—				
*Japan	—	1,892	1,894	—	—	—	(f)	—	—	—	—	—	(f)	—				
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—				
*Algeria	—	2,909	3,180	—	—	75	—	—	—	—	—	—	—	—				
Egypt	272	274	284	99.3	95.7	101	—	—	—	3)100	—	—	103	—				
GRAND TOTAL	17,173	15,217	15,900	112.8	108.0	—	—	—	—	—	—	—	—	—				
OATS																		
France (2)	2,274	2,233	2,110	101.8	107.8	—	—	—	(3)72	—	—	—	—	—				
Greece	326	353	340	92.3	96.1	—	—	—	—	—	—	—	—	—				
Luxembourg	61	61	66	100.0	93.1	2.7	—	—	—	—	—	—	2.1	—				
*Switzerland	—	28	29	—	—	—	—	—	—	—	—	—	85	—				
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—				
United States	(5)35,393	(6)36,615	(6)39,074	96.7	90.6	—	—	—	—	—	—	—	—	—				
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—				
*Algeria	—	450	457	—	—	75	—	—	—	—	—	—	—	—				
TOTAL	38,054	39,262	41,590	96.9	91.5	—	—	—	—	—	—	—	—	—				

† See explanation according of the various systems, page 303. — * Countries not included in the totals. — (a) Above the average. — (b) Average. — (c) Below the average. — (d) Very good. — (f) Average. — (w) Winter crop. — 1) Not including Austria. — 2) Acreage sown up to 1 January. — (3) 1 January 1939. — (4) Middle of the month. — (5) Area indicated for harvest, calculated on farmer's intentions on 1 March 1939. — (6) Area harvested.

In the following table are published the areas sown to spring cereals this year and in the last four years.

Area sown to all spring crops
(thousands acres).

Date	1939	% of Plan	1938	% of Plan
March 15 . . . . .	...	...	1,925	0.3
" 20	3,163	1.5	3,568	1.7
" 25	5,229	2.5	7,693	4.0
April 1	10,379	5.0	14,394	7.0
" 5	16,986	8.0	18,938	9.0
" 10	30,891	15.0	27,313	14.0

These statistics do not include the area of individual holdings which are however of little importance as regards the cultivation of cereals. In 1938 they amounted to only 1,500, 000 acres, or 0.6 per cent. of the total area cultivated to cereals in the Union.

On April 15 the area sown to all spring cereals had risen to 44,181,000 acres, or 22 per cent. of the plan and sowing had also extended to the central region. In 1938 the area sown to the same date was 35,465,000 acres, or 17 per cent. of the plan.

America.

United States: According to the Crop Reporting Board's report on farmers' planting intentions, seedings of all spring wheat are expected to total 19,505,000 acres in 1939. This would be 17.1 per cent. less than the 23,515,000 acres seeded in 1938 and 13.3 per cent. below the 1933-37 average of 22,507,000 acres. A reduction from last year's seedings is indicated for all the important spring wheat growing States, the indicated decreases ranging from 43 per cent. in Oregon to 11 per cent. in North Dakota. East of the Mississippi River, in the less important spring wheat area, the spring wheat acreage is expected to increase slightly although most States show no change from last year. The prospective acreage for 1939 for the country as a whole is the smallest seeded in 14 years, with the exception of 1934.

The totalspring wheat acreage includes 3,545,000 acres of durum wheat, a decrease of 8.1 per cent. from last year's seedings.

The acreage loss through abandonment has varied widely in the past 10 years and this wide variation makes it difficult to forecast probable harvested acreage with great accuracy. However, if the abandonment in 1939 approximates to the average of the past 10 years, excluding the heavy losses of 1934 and 1936, the indicated acreage of all spring wheat for harvest would be about 16,700,000 acres as compared with 20,510,000 acres in 1938.

Winter wheat production, on the basis of crop condition on April 1, is expected to reach 329,531,000 centals (549,219,000 bushels) compared with 411,982,000 centals (686,637,000 bushels) in 1938 and with a 1933-37 average of 298,260,000 centals (497,100,000 bushels); percentages, 80.0 and 110.5.

With the exception of California and a few scattered areas elsewhere, there has been a general improvement in winter wheat prospects since December 1. A marked improvement has occurred in the Southern Great Plains area where dry weather at and following seeding resulted in generally poor prospects last autumn even though subsoil moisture conditions were generally better than for some years. Although

somewhat dry, the winter was generally favourable in this area and March rainfall was above normal, resulting in much improvement. Although improved over last December, prospective yields in the Central and Southern Plains area, with the exception of Oklahoma, are still below average. Elsewhere indicated yields are mostly average or better with the exception of California where the winter was dry. The critically dry conditions there were relieved in most areas in March. In the Eastern Maize Belt the spring is late but winter wheat development has been good.

Reports on April 1 indicated that about 16 per cent. of the acreage seeded last autumn would not be harvested. This leaves about 38,900,000 acres for harvest in 1939 compared with 49,711,000 acres harvested last year.

The winter was favourable for the rye crop, the condition at 79 per cent., of normal on April 1 being 3 points above that of December 1, whereas the average change for the last ten years has been a decline of 3 points between the two dates. In the West North Central Region, which includes the most important rye producing States, the mild winter has resulted in marked improvement in condition over that of December 1 which, however, was below average following the dry autumn. Growth is well advanced in Nebraska and has started in South Dakota. Over most of this area soil moisture is sufficient for present needs but more will be needed soon.

The prospective seedings of barley in 1939 are estimated at 13,219,000 acres. This is a 16.6 per cent. increase on 1938. A marked increase is planned in the winter wheat States from Nebraska to Texas and eastward to the Appalachian Mountains. In the spring wheat States, from the Dakotas to Michigan, more moderate increases are contemplated. In California an increase of 15 per cent. is expected. Although barley is a relatively unimportant crop in other parts of the country, increases, some very appreciable, are reported for practically all States.

Abandonment of barley in 1938 was about 7 per cent. of the planted acreage. This was about an average abandonment exclusive of the years 1933, 1934 and 1936. If an abandonment of 7 per cent. be assumed for 1939 the area left for harvest would amount to 12,294,000 acres compared with 10,513,000 harvested in 1938.

The prospective seedings of oats are estimated at 35,393,000 acres. This is a decrease of 3.3 per cent. from the 36,615,000 acres seeded in 1938 and would be the smallest planting of oats since 1909.

In the North Central States, which have approximately three-fourths of the country's oats acreage, prospective plantings indicate a decrease of 5.0 per cent. from those in 1938. All other sections report some decrease. The intended plantings in the North Atlantic States show an increase of 0.6 per cent., the South Atlantic States an increase of 4.3 per cent., the South Central States an increase of 0.5 per cent. and the Western States an increase of 8.8 per cent.

Assuming an abandonment of 3.3 per cent., the average of the past ten years exclusive of 1934 and 1936, the oats acreage for harvest would amount to 34,225,000 acres compared with 35,477,000 acres harvested in 1938.

The first half of April was generally unfavourable for agriculture owing to cold and excessive moisture. Spring operations were delayed and winter wheat, though satisfactory early in the month, declined in condition. Crops in the south and south-west, however, were making fair progress.

Asia.

India: Crop condition in the Punjab on April 3 was average to good in irrigated areas and under average to average in unirrigated areas; some damage had been caused by hail in Shahpur, Jhelum and Gurgao and by rust in Mianwali and parts of Jhang.

There was general rain in the week ending March 27 and rain in all districts except Gujrat and Ludhiana in the following week.

In the Central Provinces in the fortnight ending March 25 the sky was cloudy and there were light showers and hailstorms but in the following week there was hot weather with scattered rain. There was rust in the late-sown crop in Jubbulpore.

(Telegram of April 20): According to the third estimate, the area cultivated to wheat this year in the Punjab is about 9,738,000 acres against 10,472,000 in 1937-38 and 10,307,000 on the average of the five years ending 1936-37, percentages 93.0 and 94.5. The corresponding production is estimated at about 74,440,000 centals (124,100,000 bushels) against 83,730,000 (139,600,000) and 77,320,000 (128,900,000); percentages 88.9 and 96.3.

(Telegram of April 21): The first estimate of Indian wheat production in the current year is 206,640,000 centals (344,400,000 bushels), compared with a corresponding estimate of 228,190,000 (380,310,000) last year, a decrease of 9.4 per cent. Compared with the corresponding average of 219,720,000 (366,200,000) for the five years ending 1937 the decrease is 6.0 per cent.

Japan: Despite the unfavourable weather of the first days of April, winter wheat and barley are in normal condition.

Palestine: During March wet conditions and cold weather prevailed until the last week of the month. Crops have wintered in excellent conditions. There were no losses, and all crops show strong forward growth. No diseases were noted save a slight attack of *Scythris temperatella* which was negated by a good growing season and the March rains.

Africa.

Algeria: Weather conditions in March were at first dry and cold, with some frost. Later there was heavy rain with hail. Precipitation for the whole month was above the normal. On the whole, wheat maintained satisfactory condition despite a little rust and discoloration in low lying areas. Growth was rather forward at the end of March except in high areas where tillering had not occurred. Barley and early wheat had begun to ear. Whiteworm did little damage and the effect of the frosts was also slight. Part of the early sowings, however, was weed infested.

An expansion of 5 to 10 per cent. in sowings is confirmed. Crop condition of all cereals on April 1 was fair to good and better than it was at the same date last year.

Egypt: Weather conditions, though, fickle on certain days, were favourable for the growth of wheat crops. Growth of grains is progressing in general areas. Maturation is progressing in early areas in Upper Egypt. The crop is normal. Early areas of barley crops in Lower Egypt are progressing towards maturity. Harvesting of early areas in Upper Egypt was started at the beginning of the month. The crop is normal.

French Morocco: Weather conditions since the beginning of the agricultural year have been distinctly favourable for crops which now promise exceptional results in most regions and fair outturns in the less favoured.

Earing began early in the month in the south and southwest where harvesting of barley had begun in the first days of April. Crops in these areas seem assured, with prospective yields far above the average. Elsewhere, condition holds out good hopes. Violent, hot winds (*chergui*) in the middle of March, however, caused scorching

of the extremities of the plant and of ears in flower, particularly in the Rharb plain. The extent of the damage is not yet clear.

Cleaning of fields proceeded during February and throughout March. Labour and equipment were engaged on the preparation of fields to be sown in the spring and on ploughed fallow.

Current information on Maize.

Hungary: At the end of March preparations for maize sowing were in progress.

Italy: Land intended for maize was prepared in good conditions during March.

Romania: At the middle of April the sowing of maize in the Danube valley had begun.

Argentina: The first estimate of the 1938-39 maize crop (see table) indicates an increase of about 22 million centals (39.5 million bushels) or 22.1 per cent. on the unusually low final figure for last year but it is still definitely below (— 39.6 per cent.) the average of the years 1932-33 to 1936-37.

The disappointing prospects of the year are largely due to the reduction in the cultivated area compared with 1937-38 (— 14.5 per cent.) and the average (— 20.0 per cent.). This decrease is the result of the unfavourable weather conditions, particularly drought and high temperatures, which prevailed at sowing-time.

These unfavourable conditions persisted in some maize areas during the period of growth, causing rather serious damage and reducing unit yields.

United States: The prospective acreage of maize to be planted in 1939, as indicated in the Crop Reporting Board's report on farmers' intentions, is 92,062,000 acres, or 1.3 per cent. below the 93,257,000 acres planted in 1938 and 8.6 per cent. below the average planted area of the five years 1933 to 1937 (100,729,000 acres). This would be the smallest acreage planted to maize in about 40 years.

With the exception of Kansas, all States of the Maize Belt show decreases from last year ranging from 1 to 9 per cent. Decreases are also expected in the South Atlantic and Western groups of States. In the North Atlantic and South Central groups of States no change from last year is indicated.

During the past 10 years the percentage of maize acreage abandoned has varied from 0.1 per cent. in 1929 to 7.5 per cent. in each of the two severe drought years 1934 and 1936. Assuming an abandonment in 1939 of 1.6 per cent., which is the same as that of 1938 and about the average for the period 1929-38, excluding the heavy losses of 1934 and 1936, the probable acreage for harvest in 1939 would be about 90,600,000 acres. Such an acreage would be the smallest acreage for harvest since 1898 and would be approached in recent years only by the 1938 acreage.

Netherlands Indies: Java and Madura. — The Department of Agricultural Statistics of the Central Statistical Office communicates the following details on the maize area:—

	1938 acres	1937 acres
Area harvested in February	1,150,300	896,500
Area harvested from January 1 to February 28	1,942,000	1,604,700
Area of standing crops at the end of February	775,400	979,500

Indochina: The harvesting of maize was in progress in February in Cambodia and Cochinchina. Yields on the whole were poor. In Tonkin seeds sprouted well.

Area and Production of Maize.

COUNTRIES	† AREA					† PRODUCTION									
	1938	1937	Aver.	% 1938		1938	1937	Average	1938	1937	Average	% 1938			
	and	and	to 1936	and-		and	and	to 1936	and	and	to 1936	and			
	1938-1939	1937-1938	1933 to 1936-1937	1937-1938	Average 1937-1938 = 100	1938-1939	1937-1938	1932-33 to 1936/37	1938-1939	1937-1938	1932-33 to 1936-37	1937 and 1937-1938 = 100	Average 1937-1938 = 100		
	ooo acres					ooo centals			ooo bushels						
Albania . . .	230	227	208	101.0	110.5	3,116	3,020	2,666	5,564	5,393	4,760	103.2	116.9		
Germany (1)	343	254	183	135.2	187.5	8,593	6,672	3,792	15,344	11,915	6,771	128.8	—		
Bulgaria . .	1,731	1,685	1,751	102.7	98.8	11,735	18,944	19,876	20,955	33,828	35,493	61.9	59.0		
*Spain . . .	...	...	1,082	...	...	...	...	15,856	...	...	28,314	...	...
France . . .	848	854	842	99.3	100.7	14,040	11,344	10,838	25,071	20,257	19,353	123.8	129.5		
Greece . . .	671	690	618	97.2	108.5	4,398	7,112	5,182	7,853	12,700	9,253	61.8	84.9		
Hungary . .	2,905	2,955	2,830	98.3	102.6	56,896	60,820	45,640	101,600	108,607	81,500	93.5	124.7		
Italy (14)	3,297	3,167	3,242	104.1	101.7	58,077	67,149	57,896	103,710	119,910	103,385	86.5	100.3		
Poland . . .	427	467	371	91.5	115.1	6,658	7,714	5,484	11,889	13,774	9,792	86.3	121.4		
*Portugal . .	218	228	227	95.8	96.0	2,783	2,274	2,067	4,969	4,060	3,691	122.4	134.6		
Romania . .	...	909	1,040	...	...	...	7,051	7,001	...	12,592	12,503	...	...
Switzerland .	12,349	12,749	12,374	96.9	99.8	112,399	104,760	116,337	200,713	187,071	207,745	107.3	96.6		
Czechoslovakia (16)	2	2	2	101.7	98.8	54	55	53	97	98	94	98.2	102.6		
Slovakia (17)	271	239	209	113.3	129.5	5,088	4,930	3,427	9,087	8,804	6,121	103.2	148.5		
Yugoslavia .	176	217	173	81.3	101.9	...	2,636	1,996	...	4,707	3,564	...	...
Total Europe	6,802	6,649	6,371	102.3	106.8	104,849	117,636	95,831	187,232	210,065	171,128	89.1	109.4		
*U. S. S. R. .	6,034	6,618	8,463	91.2	71.3	...	...	81,924	...	...	146,293	...	...
Canada . . .	180	166	152	108.8	118.5	4,306	3,032	3,445	7,690	5,415	6,151	142.0	125.0		
Unit. St. (11)	91,792	93,741	99,544	97.9	92.2	1,423,653	1,484,719	1,187,521	2,542,238	2,651,284	2,120,574	95.9	119.9		
*Mexico . . .	(82,106)	(81,483)	...	100.8	...	1,275,265	1,316,167	1,018,659	2,277,259	2,350,299	1,819,034	96.9	125.2		
Total N. Am.	91,972	93,907	99,596	97.9	92.3	1,427,959	1,487,751	1,190,966	2,549,928	2,656,699	2,126,725	96.0	119.9		
*China . . .	...	...	11,201	...	...	...	...	137,824	...	...	246,115	...	...
Korea . . .	341	335	289	101.8	118.3	2,107	2,639	1,991	3,763	4,712	3,555	79.9	105.8		
Manchukuo .	...	3,445	2,839	...	...	51,704	44,000	39,487	92,329	78,572	70,513	117.5	130.9		
Palestine . .	21	18	14	112.5	148.9	176	191	96	315	341	171	92.2	184.5		
*Syria & Leb.	...	48	54	...	...	...	599	520	...	1,070	928	...	...
*Transjord. .	...	...	...	...	...	3	2	5	6	3	8	169.4	67.4		
Turkey . . .	...	1,112	1,015	...	...	15,753	11,929	11,127	28,130	21,301	19,870	132.1	141.6		
Total Asia	4,919	4,910	4,157	100.2	118.2	69,740	58,759	52,701	124,537	104,926	94,109	118.7	132.3		
Ital. East. Afr.	...	25	26	...	...	...	86	184	...	154	329	...	...
*Eritrea . .	...	...	34	...	...	...	...	317	...	...	565	...	...
*Somalia . .	...	...	...	...	...	...	...	...	...	...	...	...	...
Algeria . . .	15	16	19	95.8	80.0	83	78	114	148	140	204	105.7	72.4		
Egypt (14)	1,545	1,613	1,698	95.8	91.0	34,449	36,275	36,297	61,516	64,777	64,816	95.0	94.9		
Kenya (16)	9	6	7	153.8	124.5	178	127	141	318	227	251	139.8	126.4		
French Morocco	112	113	122	98.6	91.6	1,940	1,936	1,893	3,465	3,457	3,379	100.2	102.5		
Tunisia (17)	1,068	1,120	963	95.3	110.9	4,255	3,561	4,171	7,598	6,360	7,449	119.5	102.0		
Total N. Afr.	43	67	48	63.8	89.0	121	132	123	217	236	220	91.7	98.2		
Argentina (3)	(13,097)	(15,319)	(16,567)	85.5	79.1	...	...	...	...	...	...	...	...
Chile . . .	...	7,307	11,641	...	...	119,050	97,533	193,978	212,590	174,166	346,391	122.1	61.4		
*Madagascar	105	107	125	98.4	84.7	...	1,238	1,496	...	2,211	2,671	...	...
Un. of S. Afr. (19)	...	280	295	...	...	...	2,756	1,825	...	4,921	3,259	...	...
S. Afr. (19)	...	6,051	5,780	...	...	60,000	36,312	30,864	107,143	64,843	55,114	165.2	159.3		
TOTALS	144,865	147,006	155,089	98.5	93.4	2,106,461	2,134,894	1,887,126	3,761,544	3,812,313	3,369,868	98.7	116.6		

† The years indicated are those of the harvest, single years referring to the Northern Hemisphere, double years to the Southern. — * Not included in the total. — § In calculating the totals account has been taken of the probable area cultivated in some countries for which estimates of production are available but not those of area. — (1) Including Austria. — (2) Estimation for the old territory. — (3) Area sown. — (4) Maize sown in spring. — (5) Maize sown in summer. — (6) Crop grown alone. — (7) Mixed crop. — (8) Average 1934 to 1936. — (9) Area fixed by the plan. — (10) Average 1932 to 1935. — (11) Maize for all purposes. — (12) Maize harvested as grain. — (13) Including Tigris. — (14) *Nili* maize. — (15) *Sefi* maize. — (16) Cultivation by Europeans. — (17) Maize and sorghum. — (18) Area harvested. — (19) Cultivation by natives. — (20) Unofficial figure.

In Annam second season sowings were in progress. First season maize was in process of ear formation, which was poor in many cases owing to drought and it is feared that yields will be low.

French Morocco: February maize sowings, having sprouted badly, were repeated in many districts in the south and were still in progress in the centre and north.

Union of South Africa: There was heavy rain throughout February in Transvaal, Orange Free State and Natal. In Transvaal and Natal severe floods did considerable damage to the maize crop, and lands were too wet to cultivate. Provided however that warm weather should follow, prospects were promising for a heavy crop. In the Orange Free State maize crops were exceptionally promising.

Current information on Rice.

Italy: Preparations for rice sowing were made during March in good conditions.

India: In Bengal light to moderate rain fell in some districts in the four weeks ending April 5 and more rain was badly needed for cultivation. In the same period there was light rain in most districts of Bihar, where crops were in fair condition, and of Orissa. In Assam the weather up to April 10 had been dry and prospects were unsatisfactory.

In the Central Provinces in the fortnight ending March 25 the sky was cloudy and there were light showers and hailstorms, but in the following week there was hot weather with scattered rain.

In Madras sowing was going on; there had been light to moderate rain in the Centre, the Circars and the Carnatic.

Netherlands Indies: Java and Madura. — The Department of Agricultural Statistics of the Central Statistical Office communicates the following details on the rice area:—

	1938 acres	1937 acres
<i>Area harvested in February:—</i>		
Wet padi	165,800	172,700
Dry padi	59,600	76,900
<i>Area harvested from January 1 to February 28:—</i>		
Wet padi	321,500	310,900
Dry padi	76,100	94,900
<i>Area of standing crops at the end of February:—</i>		
Wet padi	6,750,800	6,723,100
Dry padi	836,200	847,100

Indochina: The condition of rice crops in February in the different territories of the Union, except Laos, was as follows.

In North Annam planting out was finished during the second half of the month. In Central and South Annam, crops were beginning to be affected by drought, particularly third month rice. In the far south twelfth month rice had been harvested with average yields.

In Cambodia the growth of dry season rice was normal. The acreage planted out seemed to be larger than in previous years.

In Cochinchina the harvesting of mid-season rice was finished in all provinces with yields varying from good to excellent. The harvesting of main season rice was in progress and that of late rice had begun in some districts. The growth of the latter was good. Flooded land rice was planted out.

In Tonkin, under the influence of favourable weather, plants sprouted vigorously on both high and low-lying rice fields. Weeding and manuring were begun.

British Malaya: It was reported in January that in Kedah and Kelantan, as well as in some parts of Penang and Province Wellesley, harvesting had already commenced and crop prospects were good except in late planted areas. In Negri Sembilan harvesting was well advanced and an average crop was expected. In the Panchang Bedena area of Selangor the appearance of the crop was promising and water supplies were ample. During the month transplanting was undertaken in some of the higher areas which were previously dry, but sufficient seedlings to complete the planting were not available owing to the advanced age of the nursery material. In the Kuala Lumpur district preparations were being made for sowing nurseries in February.

Current information on Potatoes.

France: Field work was delayed by unfavourable weather in March and by the necessity to resow cereal areas destroyed by the frosts. The first half of April, however, was favourable for work on the land. Early potato plantings were made in Brittany on an area slightly smaller than last year's owing to difficulties in obtaining seed potatoes.

Hungary: At the end of March the selection of tubers and preparation of the land for potato planting were in progress. The plantings of early varieties and germinated varieties were being carried out.

Italy: The planting of main season potatoes was in progress in the first half of March, while that of early varieties was well advanced. Unfavourable weather did same damage to crop in the second half of the month.

Poland: Severe frost, without snow cover, in the second half of December caused the freezing of potatoes in silos.

Argentina: The results of the lifting of early varieties varied from average to excellent in Buenos Aires Province. Prospects in the other producing centres are generally good.

United States: The Crop Reporting Board estimates, on the basis of farmers' planting intentions at March 1, that potato plantings this year will cover about 3,076,000 acres compared with 3,069,000 acres planted last year and with a 1933-37 average planted area of 3,445,000 acres.

Algeria: The production of early winter potatoes, which are reserved for export, is estimated at 1,731,000 centals (2,884,000 bushels) against 1,470,000 (2,450,000) in 1938 and an average of 995,000 (1,658,000) in 1933 to 1937; percentages, 117.7 and 173.9. The yield per acre is not very high, crops having suffered in March from frosts and hail. The increase in production is due principally to an increase in acreage to 25,500, acres, which is 46.2 per cent. higher than in 1938 and 52.5 per cent. higher than the average.

The Acreage under Sugar-beet in 1939.

Estimates of sugar-beet acreage this year for nearly all the countries of Europe have now been received by the Institute. For the present German Reich, for the territory of the former Czecho-Slovakia and for Spain the estimates of F. O. Licht have been adopted.

For the U. S. S. R. the figures are those of the Plan.

For other continents the only figures available are those of Canada and Japan.

In the great majority of countries, and in all the important producing nations, the acreage to be cultivated to sugar-beet is larger than last year. In certain countries the acreage is more or less unchanged, and in very few is it lower.

The aggregate area under sugar-beet in Europe, excluding the U. S. S. R., is, according to these preliminary estimates, 3 per cent. larger than the 1938 figure and 17 per cent. larger than the average of 1932-1936.

Acreage of sugar-beet.

COUNTRIES	1939 (*)	1938	Average 1933 to 1937	% 1939	
				1938 = 100	Average = 100
				acres	
Germany	(r) 1,411,000	(r) 1,348,234	1,008,538	—	—
Bohemia-Moravia	(r) 279,000	} (r) 314,239	368,580	—	—
Slovakia	(r) 32,000				
Belgium	128,000	121,800	116,781	105	110
Bulgaria	34,050	28,956	17,955	118	190
Denmark	96,000	96,000	101,962	100	95
Spain	(r) 120,000	(r) 235,000	206,447	53	60
Finland	8,350	12,800	7,463	65	112
France	623,000	590,000	588,058	105	106
Hungary	119,000	109,064	94,245	109	126
Ireland	44,000	51,181	48,208	86	91
Italy	358,000	320,000	227,812	112	157
Latvia	33,400	33,600	33,854	99	99
Lithuania	20,300	20,300	15,494	100	131
Netherlands	107,500	104,450	106,375	103	101
Poland	418,000	371,583	295,518	112	141
Romania	111,000	117,429	86,938	95	128
United Kingdom	350,000	335,000	361,108	104	97
Sweden	120,000	125,430	127,726	99	97
Switzerland	8,900	7,290	4,255	122	209
Yugoslavia	111,000	71,825	56,440	155	197
Total Europe a)	4,532,500	4,414,181	3,873,757	103	117
U. S. S. R.	2,920,000	2,916,100	2,997,976	100	97
Total Europe b)	7,452,500	7,330,281	6,871,733	102	109
Canada	58,500	47,900	50,580	122	116
United States . . . . .	...	930,000	808,659	...	...
Total North America . . .	...	977,900	859,239	...	...
Japan	56,400	56,370	36,226	100	156
Turkey . . . . .	...	67,000	68,489	...	...
Total Asia . . . . .	...	123,370	104,715	...	...
TOTALS a)	...	5,515,451	4,837,711	...	...
. b)	...	8,431,551	7,835,687	...	...

* Approximate data. — a) Not including U. S. S. R. — b) Including U. S. S. R. — (1) Licht's estimate.

Since 1935 the sugar-beet area in Europe, excluding the U. S. S. R., has been steadily increasing, and has now nearly returned to the record figure of 1930. If the U. S. S. R. is included, the present aggregate figure is the highest since the War.

Beet sowing is finished in all the countries of southern Europe and has made good progress in the remainder, but is generally rather late owing to delay in preparing the ground caused by cold weather and rain at the end of March.

Current information on Sugar.

France: Field work was delayed by unfavourable weather in March and by the necessity to resow cereal areas destroyed by the frosts. The first half of April, however, was fine, sunny and favourable for work on the land. Early potato plantings were made in Brittany on an area slightly smaller than last year's owing to difficulties in obtaining seed potatoes.

Production of Beet-sugar (raw).

COUNTRIES	TOTAL PRODUCTION DURING THE SEASON			% 1938-39	
	1938-39 (1)	1937-38	Average 1932-33 to 1930-37	1937-38 = 100	Average = 100
	thousand centals				
Germany	2) 46,817	52,193	37,859	—	—
Belgium	4,266	5,234	5,488	82	78
Bulgaria	476	632	441	75	103
Denmark	4,189	5,269	4,328	79	97
Spain	2,976	3,331	5,412	89	55
Finland	333	243	197	137	169
France	19,842	21,367	21,913	93	91
Hungary	3,042	2,448	2,731	124	111
Ireland	1,334	2,008	1,418	66	94
Italy	8,867	7,852	7,269	113	122
Latvia	735	996	937	74	78
Lithuania	459	633	400	72	114
Netherlands	4,808	5,202	5,300	92	91
Poland	12,037	12,391	9,299	97	129
Romania	3,682	1,808	2,374	204	155
United Kingdom	7,206	9,392	11,688	77	62
Sweden	6,442	7,634	6,198	84	104
Switzerland	287	267	189	107	151
Czecho-Slovakia	11,585	16,720	13,621	—	—
Yugoslavia	1,196	824	1,826	230	104
<i>Total Europe (a) . . .</i>	<i>141,279</i>	<i>156,444</i>	<i>138,888</i>	<i>90</i>	<i>102</i>
U. S. S. R.	48,502	55,116	32,060	88	151
<i>Total, Europe (b) . . .</i>	<i>189,781</i>	<i>211,560</i>	<i>170,948</i>	<i>90</i>	<i>111</i>
Canada	1,609	1,369	1,475	118	109
United States	36,059	27,392	28,454	132	127
<i>Total North America . . .</i>	<i>37,668</i>	<i>28,761</i>	<i>29,929</i>	<i>131</i>	<i>126</i>
Japan	1,120	1,113	769	101	146
Manchukuo	463	260	85	178	547
Turkey	1,323	1,263	1,288	105	103
<i>Total Asia . . .</i>	<i>2,906</i>	<i>2,636</i>	<i>2,142</i>	<i>110</i>	<i>136</i>
GENERAL TOTALS (a)	181,853	187,841	170,959	97	106
(b)	230,355	242,957	203,019	95	113

(a) Not including U. S. S. R. — (b) Including U. S. S. R. — (1) Approximate data. — (2) Present territory. — (3) Licht's estimate.

Hungary: At the end of March the land was being prepared for sugar-beet planting, which had begun locally.

Italy: The planting of sugar-beet began in the first half of March. The cold weather did same damage to crops in the second half of the month.

Argentina: The condition of sugar-beet crops was good in March in the irrigated areas of Buenos Aires province and average in the valley of the Rio Negro.

Prospects for sugar-cane in March were excellent throughout the country.

Production of Cane-sugar.

COUNTRIES	1938-39 (I)	1937-38	Average of 1932-33 to 1936-37	1938-39 (I)	1937-38	Average of 1932-33 to 1936-37	% 1938-39	
	thousand centals			short tons			1937-38 = 100	Average = 100
AMERICA.								
Antigua.	573	493	523	29,000	24,640	26,125	116	110
Argentina.	10,362	8,170	8,074	520,000	408,480	403,673	127	128
Barbados.	3,248	2,496	2,542	162,400	124,784	127,124	130	128
Brazil.	25,353	22,827	19,949	1,270,000	1,141,300	997,456	111	127
Cuba.	61,730	67,199	55,589	3,100,000	3,360,000	2,779,408	92	111
Ecuador.	419	397	402	21,000	20,000	20,081	106	104
United States (La. & Fl.)	11,600	9,240	6,408	580,000	462,000	320,439	126	181
British Guiana.	3,968	4,368	3,724	200,000	218,000	186,173	91	107
Jamaica.	2,588	2,647	1,803	129,416	132,371	90,163	98	143
Martinique.	1,213	1,213	1,053	61,000	61,000	52,646	100	115
Mexico.	7,772	6,687	5,483	388,602	334,325	274,142	116	142
Peru.	10,141	9,061	8,933	510,000	453,000	446,652	112	114
Puerto Rico.	17,417	19,936	18,392	870,000	996,800	919,577	87	95
Dominican Republic.	9,215	9,149	9,131	461,000	457,000	456,557	101	101
St. Kitts.	717	626	642	35,840	31,287	32,125	115	112
Trinidad.	3,527	2,993	2,925	180,000	149,662	146,248	118	121
Venezuela.	540	540	486	27,000	27,000	24,295	100	111
Total America.	170,383	168,042	146,059	8,545,258	8,401,649	7,302,884	101	117
ASIA.								
Taiwan.	32,959	25,904	18,313	1,648,000	1,295,000	915,628	127	180
India.	65,037	70,896	72,823	3,250,000	3,544,800	3,641,086	92	89
Japan.	3,286	2,576	2,202	164,300	128,689	110,117	128	149
Java.	34,172	30,841	19,888	1,710,000	1,542,037	994,406	111	172
Philippines.	21,605	22,064	24,316	1,080,000	1,103,200	1,215,777	98	89
Total Asia.	157,059	152,281	137,542	7,852,300	7,613,826	6,877,014	103	114
AFRICA.								
Egypt.	3,527	3,532	3,223	176,000	176,600	161,171	100	109
Madagascar.	265	238	243	13,000	11,900	12,000	111	109
Mauritius.	7,081	6,919	5,593	354,100	345,920	279,627	102	127
Reunion.	1,764	1,764	1,632	90,000	90,000	81,604	100	108
Union of South Africa.	10,420	10,144	7,890	521,000	507,219	394,509	103	132
Total Africa.	23,057	22,597	18,581	1,154,100	1,131,639	929,036	102	124
OCEANIA.								
Australia.	17,637	17,829	14,692	880,000	891,400	734,582	99	120
Hawaii.	20,701	20,272	20,311	1,035,000	1,013,600	1,015,529	102	102
Fiji Is.	3,086	3,197	2,905	150,000	160,000	145,264	97	106
Total Oceania.	41,424	41,298	37,908	2,065,000	2,065,000	1,895,375	100	109
TOTALS.	391,923	384,218	340,090	19,616,658	19,212,111	17,004,309	102	115

(1) Approximate data.

Barbados: The good rains which were experienced generally throughout the Island during February were beneficial to the cane crop.

Leeward and Windward Islands: It was reported in February that cane grinding had started in Antigua and St. Kitts. In St. Lucia the young sugar canes were progressing favourably and preparations were being made for the coming crop.

Trinidad: It was reported in February that the sugar crop was proceeding normally with all factories grinding, and it was stated that if the favourable weather continued the crop should be completed in record time.

Netherlands Indies: J a v a . — In the first half of April, rains were light. Work was impeded by a shortage of labour at Sidoardjo and by drought. The dry weather however, was favourable for the ripening of canes in young plantations. Comparatively high yields are reported from various districts. (Aneta)

Indochina: In February the planting of cane was in progress in Annam and Cochin-china under good conditions. The cutting of cane on old plantations was carried out rapidly in view of the rise in price of sugar and early maturity due to the drought.

The sugar yield was lower than normal.

Egypt: Early planting of sugar cane is over. General planting, hoeing, watering and manuring are progressing. Germination and growth are satisfactory. The old crop has been cut to the extent of 85 per cent. Owing to the high water level on Qena crop during the Nile flood the average yield per acre was 5 per cent. below normal.

Mauritius: Steady rains fell during February, but it was estimated that previous drought conditions had damaged 25 per cent. of the new crop.

Viticultural Area and Production in the Northern Hemisphere in 1938.

The Institute received during April a number of estimates which enable the completion of the statistical tables and a revision of the estimates of aggregate area and production.

In regard to *wine production*, the latest figures from Bulgaria (production of wine grapes, converted into wine by a standard co-efficient), Hungary, Romania and Yugoslavia accentuate the impression, already received, of a heavy over-production of wine in Europe. Moreover, the third partial enquiry among Californian wineries indicates that wine production in the United States is rather higher than had been estimated on the basis of the quantity of wine grapes to be used industrially, according to the Prorate Program.

The estimate of production of wine in the Northern Hemisphere is still subject to revision, in the absence of statistics for Spain, and in view of the doubtful interpretation of the figure for Italy and the preliminary nature of certain other estimates, specially for Portugal. Nevertheless, the totals show with a fair degree of accuracy the size of wine production in the Northern Hemisphere. The latest revisions show that only Italy and the importing countries of central Europe have had smaller vintages than the average of 1929-34 or than their normal consumption.

In supplementation of the survey of the United States wine market, given in last month's Crop Report, it should be noted that the volume of wine stocks

*World Wine Production in 1938/1938-1939 and previous years;
Summary table.*

COUNTRIES	Million Imperial gallons							
	1938	1937	1936	1935	1934	Average 1929-1933	Average 1924-1928	Pre-war average 1909-1913
NORTHERN HEMISPHERE								
France and Algeria . . .	1,860	1,533	1,214	2,090	2,204	1,535	1,499	1,278
Italy (exporting country) .	(*) (1) 860	748	740	1,027	680	845	880	1,012
Spain, Portugal and Ma- deira (exporting coun- tries) (2)	(*) 550	(*) 550	(*) 420	497	706	614	609	405
Greece and Hungary (expor- ting countries) (2)	164	174	143	176	141	132	110	(*) 130
Tunisia and Fr. Morocco (exporting countries) . .	62	44	37	48	51	33	22	9
Romania, Yugoslavia and Bulgaria	887	331	246	394	301	299	249	(*) 120
Germany, Austria, Czecho- Slovakia, Switzerland and Luxemburg (import- ing countries) (2)	(*) 90	94	112	154	141	90	68	64
United States and Canada (importing countries) . .	(*) 140	213	126	172	108	(*) 90	(*) 90	(*) 45
Cyprus, Turkey, Aegean Islands, Palestine, Syria and Lebanon, Libya . .	(*) 15	(*) 13	(*) 13	(*) 13	(*) 13	(*) 11	(*) 11	(*) 4
<i>Total Northern Hemisphere</i>	(*) 4,070	(*) 3,700	(*) 3,050	4,570	4,345	3,650	3,540	(*) 3,070
	1938-39	1937-38	1936-37	1935-36	1934-35	1929-30/ 1933-34	1924-25/ 1928-29	1909-10/ 1913-14
SOUTHERN HEMISPHERE								
Australia and Union of South Africa (exporting countries) . . . . .	...	52	48	46	40	32	31	13
Chile (exporting country) .	...	(*) 90	(*) 90	75	48	61	55	46
Argentina, Brazil, Uru- guay, Peru . . . . .	...	(*) 240	213	161	125	159	165	(*) 110
<i>Total Southern Hemisphere</i>	...	(*) 380	(*) 350	282	213	252	251	(*) 170
WORLD TOTAL (2) . . .	(*) 4,400	(*) 4,080	(*) 3,400	4,850	4,560	3,900	3,790	(*) 3,240

(*) Approximate figure.

(1) Figure calculated by the Institute so as to correspond with previous years. — (2) For Spain, Greece, Hungary, Germany and Luxemburg, original figures expressed in must have been converted into their equivalent of wine. — (3) Not including U. S. S. R. (80 to 100 million Imp. gal.) and certain unimportant producing countries (Malta, Japan, Bolivia, Paraguay, Madagascar, New Zealand), of which total production is less than 2 million Imperial gallons.

for direct consumption on December 31 in the wineries, store rooms etc., among which the partial inquiry of the Wine Institute was conducted, amounted to 94,294,000 Imperial gallons (113,236,000 American gallons), which is rather lower than the total on December 31, 1937 but double the estimated consumption by these wineries, namely 45,799,000 Imperial (54,990,000 American) gallons against 48,314,000 (58,046,000) in 1937. Moreover the production of wine alcohol during the 1938-39 industrial year, excluding that for fortifying brandy,

Production and utilization of grapes in certain countries.

COUNTRIES AND SPECIFICATIONS	1938	1937	Average 1932/1936	% 1935	
	100,000 lb.			1937 = 100	average = 100
<i>Albania:</i>					
Grapes consumed fresh	347	265	294	130.8	118.0
<i>Germany:</i>					
Table grapes	10	15	—	66.8	—
All grapes consumed fresh	—	—	1) 86	—	—
<i>Bulgaria:</i>					
Wine varieties	12,333	7,808	—	158.0	—
Table varieties	2,912	2,242	—	129.9	—
Total production	15,245	10,050	9,422	151.7	161.8
<i>France:</i>					
Grapes crushed for wine	2) 171,000	—	—	—	—
Table grapes 3)	2,904	3,507	2,837	82.8	102.4
Total	174,000	—	—	—	—
<i>Greece:</i>					
Table grapes	1,818	1,598	1,592	113.8	114.2
Raisins (dried basis)	4,161	4,171	4,204	99.8	99.0
<i>Hungary:</i>					
Total production (table grapes)	672	1,204	695	55.8	96.7
<i>Italy:</i>					
Wine grapes actually crushed	12,424	11,721	12,757	106.0	97.4
Grapes consumed fresh	7,350	6,776	7,602	108.5	96.7
comprising:					
Wine varieties	(4,625)	(4,369)	(4,914)	(105.9)	(94.1)
Table varieties	(2,725)	(2,407)	(2,688)	(113.2)	(101.4)
Grapes used for drying	4.4	3.7	12.6	119.0	34.9
Total production	13,164	12,402	13,530	106.1	97.3
comprising:					
from unmixed vines (<i>superficie integrante</i>)	(7,154)	(6,252)	(7,218)	(114.4)	(99.1)
from mixed vines (<i>superficie non integrante</i>)	(6,010)	(6,150)	(6,312)	(97.7)	(95.2)
Raisins	1.4	1.2	4.1	119.3	35.0
<i>Yugoslavia:</i>					
Total production	15,178	10,640	17,336	142.7	87.6
<i>Canada:</i>					
Commercial production of grapes	310	544	413	57.0	75.0
<i>United States</i> (distribution according to type of vines):					
a) <i>California:</i>					
Varieties for wine	11,780	12,520	9,308	93.3	126.6
Varieties for table grapes	8,060	8,320	6,528	96.9	123.5
Varieties for drying	26,780	28,140	20,940	95.2	127.9
Total	46,620	49,080	36,776	95.0	126.8
Raisins (dried basis)	5,340	4,938	4,052	108.1	131.8
b) <i>Other States</i> (almost exclusively table varieties)	3,445	6,455	4,886	53.4	70.5
<i>Cyprus:</i>					
Grapes crushed for wine	779	329	466	236.8	167.0
Grapes consumed fresh and for other purposes	200	295	446	67.7	44.8
Raisins fresh basis	430	141	275	304.2	153.3
Total production	1,409	765	1,184	184.1	118.9
Raisins (dried basis)	143	47	92	304.2	156.3

(1) Average 1935 and 1936. — (2) Calculated from an average quantity of 12.7 lb. per Imp. gal. (10.6 lb. per Am. gal.) and a total production of wine of 1,340,000,000 Imp. gal. (1,610,000,000 Am. gal.). — (3) Production of the table grape vines, representing roughly the commercial crop marketed fresh for direct consumption.

reached the extremely high figure of 7,911,000 Imperial (9,500,000 American) gallons against 1,740,000 (2,102,000) in 1937-38 and an average of 1,282,000 (1,540,000) in the four preceding seasons. The consumption of these alcohols reached a maximum of 1,116,000 (1,340,000) gallons in 1937 and 907,000 (1,090,000) in 1938. These figures show that the programme in operation included both the fixing of quotas of grapes used industrially for wine making and the reabsorption to a great extent of the crop of grapes for wine by means of distillation.

Area in Vines in certain Countries.

COUNTRIES AND SPECIFICATION	1938	1937	1932-1936 Average	" 1938	
	000 acres			1937 = 100	Average = 100
Albania, all vineyards (b)	9.7	9.8	(1) 7.1	99.1	135.6
Germany, all vineyards (a)	181	182	178	99.5	101.7
" " (b)	(201)	(202)	(204)	(99.5)	(98.3)
Bulgaria,					
for wine (b)	(221)	(220)	—	(100.4)	—
for table grapes (b)	(62.8)	(56.1)	—	(62.8)	(56.1)
total vineyards (b)	284	276	223	102.8	122.4
France, vines for wine (a):					
areas from crop returns (2)	3,646	3,620	3,569	—	—
other areas not declared (2) . . . . .	...	130	233	—	—
Greece,					
for wine (a)	(392)	(385)	(359)	(101.7)	(109.2)
for table grapes (a)	(48.8)	(51.1)	(44.5)	(95.5)	(109.6)
for raisins (a)	(199)	(192)	(184)	(103.2)	(108.2)
total vineyards (a)	640	628	588	101.7	108.9
Hungary, all vineyards (a)	538	536	527	100.3	102.3
Italy, all vineyards (b):					
unmixed crop (<i>superficie integrante</i>)	2,375	2,356	(1) ⁽³⁾ 2,362	100.8	100.5
mixed crop (<i>superficie promiscua</i>) (4)	7,288	7,298	(1) ⁽³⁾ 7,306	99.9	99.8
Luxemburg, all vineyards (a)	2.4	2.3	2.5	103.2	95.0
Malta, all vineyards (b)	2.0	1.9	1.7	105.5	120.8
Switzerland, all vineyards (b)	33.0	33.1	32.4	99.8	101.9
Czechoslovakia, all vineyards (b)	65.9	64.3	53.8	102.5	122.3
Yugoslavia, all vineyards (a)	499	531	492	93.9	100.2
Cyprus, all vineyards (a)	124.7	123.3	120.0	101.1	103.9
Algeria, vines for wine (a)	985	975	940	101.0	104.8
French Morocco, vines for wine (5) (a)	57.5	59.2	54.3	97.1	106.0
Tunisia, vines for wine (5) (a)	104.7	105.2	108.3	99.5	96.7

(a) Vines bearing only. — (b) Vines bearing and not bearing.

(1) Average 1935 and 1936. — 2) The declared area corresponds to declarations of wine production. The undeclared area represents the gap between preliminary figures and complete estimates. The latter only are comparable. The numbers of viticulturists who made crop declarations were: 1,575,000 in 1938, 1,615,000 in 1937, and an average of 1,541,000 in the five years ending 1936. — (3) Figures for the three preceding years are not comparable. The comparable figures for 1929, given by the *Catálogo agrario*, are 2,313,000 and 7,374,000 acres. — (4) Area of vines and other associated crops. The vines actually occupy $\frac{1}{10}$ of this area. — (5) European crops almost exclusively for wine.

The production of table grapes can at present only be estimated for a number of countries. The outturn is rather mediocre in France, Hungary and Cyprus, but rather large in the other principal producing countries, Italy, Bulgaria, Greece and the United States. On the aggregate, production does not appear to be quite so abundant as that of grapes for wine. The total production of table grapes consumed fresh in Italy, France, Bulgaria, Greece, Hungary and

Albania was 16,003,000 centals against 15,592,000 centals in 1937 and an average of 16,200,000 centals in 1932-1936. The rather poor quality of the vintage in many cases explains this lower commercial production.

The *production of dried grapes* seems to have been comparatively much larger. The aggregate figure for Greece, the United States, Cyprus and Italy is 9,700,000 centals against 9,167,000 in 1937 and an average of 8,389,000 in 1932-1936. Moreover Turkey exported 1,786,000 centals in 1938 against 635,000 in 1937 and an average of 1,285,000 in 1932-1936 (with a maximum of 1,684,000 in 1935). Assuming that the latter country exports about three quarters of her annual production, it may be estimated approximately that the production of dried grapes in the Northern Hemisphere was about 20 per cent. higher than in 1937 and the preceding five-year average and that it represents an absolute maximum for the post-War period.

In regard to the *area under vines*, the table shows that the rise in productive area continued in most countries, though at a declining rate. Appreciable reductions however in the area of vines for wines are shown for Yugoslavia and French Morocco. Moreover there was also a reduction, which though slight shows a trend, in Germany and Switzerland. It may be assumed that the area of vines for wine in bearing in the Northern Hemisphere remained about stationary and that there was not any extensive new plantation. On the other hand, the area under vines for table grapes, fresh or for drying, appears to have increased.

Briefly, as far as one can tell from the information available, the productivity of vines does not seem to have varied greatly in the last two years, but there was a slight increase, particularly in the case of vines for fresh or dried table grapes.

P. V.

Current information on Vines.

France: The weather in March was cold and wet even in the south and caused a delay in growth and work. Pruning was nearly finished at the end of the month but field work was progressing slowly. The first half of April was fine and much more favourable. Owing to the lateness of budding, it was still difficult at the end of March to estimate the damage caused by the winter frosts but the effects appeared serious in some areas. The lateness of growth, however, will probably mitigate the effect of spring frosts.

Italy: Vines were backward at the end of March and some damage was done in Sicily by hail, wind and frosts.

Argentina: In March the picking of all varieties of grapes was in progress in the principal viticultural centres. In Mendoza yields were generally high, except in districts affected by hail.

The condition of vineyards in the irrigated zone of San Juan had improved and the grape crop was considered satisfactory. In the Rio Negro valley results are good.

United States: The following is a summary of the Third Annual Wine Industry Statistical Survey for California. This inquiry is unofficial but covers 773 bonded wineries, storerooms and other bonded premises, and we give for comparison official statistics for the whole of the United States in preceding years.

		1938	1937	Average 1932-36
Statistics of partial inquiry of Wine				
Institute	(ooo Imp. gals.)	47,070	71,073	38,470
	(ooo Am. gals.)	56,526	85,351	46,203
Official complete statistics of industrial production				
	(ooo Imp. gals.)	...	184,375	101,200
	(ooo Am. gals.)	...	221,418	121,518
Official estimate of production in homes.				
	(ooo Imp. gals.)	...	28,300	28,300
	(ooo Am. gals.)	...	34,000	34,000

Wine Production in the Northern Hemisphere.

COUNTRIES	1938	1937	Average 1932/1936	Average 1927/1931	% 1938		
	ooo Imperial gallons				1937 = 100	1932-1936 = 100	1927-1931 = 100
Germany (1)	† 52,202	† 55,478	† 68,346	† 49,068	94.1	76.4	106.4
*Austria (land) . . . . .	...	18,764	23,223	18,307	...	...	...
Bulgaria	2) 55,000	2) 33,000	30,916	26,430	166	178	208
*Spain . . . . .	...	...	3)† 438,342	† 495,867	...	...	...
France (4)	1,273,834	1,130,133	1,253,882	1,187,818	112.7	101.6	107.2
Greece	† 90,193	† 74,100	† 79,738	† 54,422	121.7	113.1	165.7
Hungary	† 71,682	† 98,395	† 72,939	† 67,401	72.8	98.3	106.4
Italy	5) 910,697	747,941	834,240	863,125	...	...	...
Luxemburg	† 1,804	† 1,271	† 1,653	† 1,361	142.0	109.1	134.4
Malta	1,188	456	676	870	260.4	175.6	135.0
Portugal	2) 240,000	177,057	157,451	147,633	137	154	164
Romania	229,000	234,560	181,251	160,176	97.5	126.2	142.8
Switzerland	7,435	10,315	13,477	12,446	72.1	55.2	59.7
*Czecho-Slovakia . . . . .	...	11,993	9,792	6,963	...	...	...
Yugoslavia	102,778	63,862	89,704	81,800	160.9	114.6	125.6
<i>Total Europe</i>	<i>6) 2,970,000</i>	<i>2,617,000</i>	<i>2,776,000</i>	<i>2,646,000</i>	<i>113.5</i>	<i>107</i>	<i>111.5</i>
*Canada . . . . .	...	...	2,530	...	...	...	...
United States (7)	47,071	71,573	3) 38,891	...	66.2	123.5	...
Cyprus	4,993	2,046	3,008	4,214	244.1	166.0	118.2
*It. Aegean Islands . . . . .	...	...	352	301	...	...	...
*Palestine . . . . .	...	550	528	587	...	...	...
*Syria and Lebanon . . . . .	...	836	676	400	...	...	...
Algeria	472,723	339,289	385,069	282,178	139.3	122.8	167.5
*Libya . . . . .	...	699	476	119	...	...	...
French Morocco	17,114	12,811	9,657	4,290	133.6	177.2	398.9
Tunisia	8) 44,723	8) 31,565	34,941	19,145	141.7	128.1	234.7
<i>Total North Africa</i>	<i>534,580</i>	<i>383,665</i>	<i>429,667</i>	<i>305,513</i>	<i>139.3</i>	<i>124.4</i>	<i>175.0</i>
<i>TOTAL NORTHERN HEMISPHERE</i>	<i>3,560,000</i>	<i>3,074,000</i>	<i>3,146,000</i>	<i>2,980,000</i>	<i>115.5</i>	<i>109.5</i>	<i>118.5</i>

* Countries excluded from the totals.

† Must coefficient used for the totals: Germany 93 %, Greece 100 % (weight into volume), Hungary and Luxemburg 94 %.

(1) Excluding the land of Austria. — (2) Approximate estimate. — (3) Incomplete average; Spain 1932/1935, United States 1933/1936, Union of South Africa 1929-30/1931-32. — (4) Crop declarations for tax purposes. Incomplete figures, the total production being about 66,000,000 Imp. gallons larger. — (5) Not comparable with previous figures, owing to changes in statistical methods. — (6) Adjusted total allowing for the statistical deviation in the data of Italy. — (7) Incomplete, preliminary and unofficial figures, according to the third Annual Survey made by the California Wine Institute. — (8) Including musts "mutés" by means of alcohol.

The production of fortified wines is considerably less than in 1937 (— 37.6 per cent.), while that of dry wines has fallen off to a lesser extent (— 26 per cent.). On the basis that it requires two gallons of dry wine to produce one gallon of fortified wine, the outturn of fermented juice from pressing appears to be about 36 per cent. lower than in 1937. Moreover the report of the inquiry indicates that the provisional figure of dry wine production will probably be considerably reduced.

On the basis of these statistics, it may be estimated that total wine production in 1938 in wineries in the United States as a whole was about 110 to 130 million Imperial gallons (130-160 million American gallons), and total production including home production at 130-150 millions (160-180 millions).

Algeria: March was at first cold and dry with frosts. The second fortnight however, was continuously wet with heavy rain and hail. Frost did comparatively slight damage owing to the general lateness of growth. Budding began to be general towards the end of March. Rain and the fear of another drop in the temperature have retarded work in the vineyards.

Current information on Olives.

Albania: The production of olives in 1938-39 is about 263,300 cents against 778,400 in 1937-38 and an average of 457,100 in the five years ending 1936-37; percentages 33.8 and 57.6.

France: At the end of March olive pruning was in full swing. This operation was being very widely carried out owing to the bonuses offered and the rise in price of olive-oil.

Italy: During the first half of March olive trees were in good condition and seasonal work was proceeding normally. Snow and winds caused some damage in the second half. Conditions were rather good, on the whole, at the end of the month.

Definitive estimates of area and production of olives and olive-oil in 1938-39 compared with the figures of 1937-38 and the average of the years 1935-36 and 1936-1937 (1932-33 to 1936-37 for olive-oil), are shown below:—

	1938-39	1937-38	Average 1935-36 and 1936-37	% 1938-39 1937-38 = 100	% 1938-39 Average = 100
<i>Area.</i>					
(thousand acres)					
Unmixed crop	2,033	2,031	2,028	100.1	100.2
Mixed crop	3,343	3,340	3,359	100.1	99.5
<i>Production of olives.</i>					
(Thousand pounds)					
Unmixed crop	1,543,206	2,538,140	1,737,991	60.8	88.8
Mixed crop	753,073	1,211,806	784,961	62.1	95.9
Total	2,296,279	3,749,946	2,522,952	61.2	91.0
Of which:—					
for oil extraction	2,277,021	3,720,490	2,503,394	61.2	91.0
for direct consumption	19,258	29,456	19,558	65.4	98.5

PRODUCTION — FLAX — COTTON

	1938-39	1937-38	Average 1932-33 to 1936-37	% 1938-39 1937-38 = 100	Average = 100
<i>Production of olive-oil.</i>					
(Thousand pounds)					
Olive-oil	397,927	600,175	426,168	66.3	93.4
(Thousand American gallons)					
Olive-oil	530,568	800,232	568,223	66.3	93.4

Argentina: The olive crop this season is normal.

Algeria: The heavy rains of the second half of March provided sub-soil reserves which will be favourable for future growth. Flowering, pruning and soil work were impeded, however, by the cold, unfavourable weather and trees were backward at the end of the year.

Current information on Flax.

Hungary: The preparation of the land for flax sowing was in progress at the end of March, and sowing had begun locally.

Italy: Flax sowing was nearly completed in the early part of March.

United States: The prospective acreage of flax to be planted for seed in 1939 is 2,023,000 acres, an increase of 84.6 per cent. over the 1,096,000 acres seeded in 1938. Although the indicated acreage to be seeded greatly exceeds that of last year, it is 19.2 per cent. below the 1929-1938 average seeded acreage.

Expansion of the flax acreage has been encouraged by comparatively favourable prices, by favourable provisions under the Agricultural Conservation programme and by the reduction in wheat acreage. A sharp increase in flax seedings is expected in all important wheat States. The percentage increase in North Dakota is not as great as that in surrounding States, probably because of the fear of grasshopper prevalence, which is especially harmful to flax. The crop is gaining prominence in California where the expected seeding is nearly threefold the acreage seeded in 1938.

India: Crop condition was reported in mid-March to be fairly good.

Current information on Cotton.

Italy: The preparation of the land for cotton sowing was carried out in March.

U. S. S. R.: In Uzbekistan which is the principal cotton producing centre of the U. S. S. R., cotton production and yields in the last five years were as follows:—

Years	Yield per acre in lb. of unginned cotton	Production of unginned cotton 000 lb.
1938	1,463	3,316,204
1937	1,436	3,358,533
1936	1,445	3,342,440
1935	1,035	2,387,173
1934	705	1,627,017

In the first decade of April cotton sowing had begun in many areas under favourable weather conditions. After a short period of low temperatures and of rain, cotton sowing was resumed in Turkestan. On April 10, collective holdings had sown about 500,000 acres, or twice as much as last year at this date.

Argentina: Heavy rain in the second half of February throughout the cotton zone considerably improved the condition of crops. The January drought did some damage in parts of the Chaco. The condition of plantations in March was considered good.

United States: Some fields were seeded in the south-eastern portion of the belt during the week ended March 21, and good field preparation was reported in the western Gulf area. Planting was active in southern Texas, and some plants were coming up. During the following week some cotton was seeded in the eastern part of the belt as far north as the coastal districts of South Carolina, and also in the eastern Gulf sections. Good progress with planting was made in southern Texas, where some cotton was up, with nice stands in the extreme southern sections. Field preparations were advancing rapidly towards the north. During the week ended April 5 good advance was made with cotton planting in much of the south-eastern part of the

Area and Production of Cotton.

COUNTRIES	AREA					PRODUCTION OF GINNED COTTON									
	1938-39	1937-38	Average 1932-33 to 1936-37	% 1938-39		1938- 1939	1937- 1938	Average 1932-33 to 1936-37	1938- 1939	1937- 1938	Average 1932-33 to 1936-37	% 1938-39			
				1937- 1938	Average age							1937- 1938	Average age		
ooo acres			= 100	= 100	ooo centals			ooo bales of 478 lb.			= 100	= 100			
Bulgaria	136	125	57	109.1	237.7	153	225	98	32	47	21	68.2	155.5		
Greece	187	178	95	104.7	195.7	321	361	189	67	75	39	89.0	170.4		
Italy	91	54	10	167.5	902.6	209	93	19	44	20	4	224.4	1080.4		
*Romania	12	4	3	296.6	452.4	...	11	3	...	2	1	...	...
Yugoslavia	12	7	3	179.4	413.0	27	15	4	6	3	1	180.0	628.7		
U. S. S. R.	5,108	5,163	5,017	98.9	101.8	18,409	18,078	10,948	3,851	3,782	2,290	101.8	168.2		
United States (1)	25,346	34,001	29,962	74.5	84.6	57,081	90,557	56,139	11,942	18,945	11,745	63.0	101.7		
Br. West Indies	22	22	14	99.2	155.3	19	25	15	4	5	3	79.9	125.8		
*Mexico . . . . .	...	829	495	...	...	...	1,625	1,177	...	340	246	...	...
Brazil	6,178	6,672	3,762	92.6	164.2	8,972	10,141	6,122	1,877	2,122	1,281	88.5	146.5		
Argentina	1,005	1,048	691	95.9	145.4	1,852	1,134	1,111	387	237	232	163.3	166.6		
*Burma	549	560	454	98.1	120.9	...	600	382	...	126	.80	...	...
Cyprus	9	12	9	73.1	95.7	8	17	9	2	4	2	47.1	87.6		
Chosen	574	547	475	105.0	121.0	929	1,017	773	194	213	162	91.3	120.2		
India (2)	23,553	25,746	23,912	91.5	98.5	20,480	23,116	21,216	4,285	4,836	4,438	88.6	96.5		
*Iraq	79	65	(3) 26	121.5	301.0	...	81	13	...	17	3	...	...
Syria	92	86	51	106.4	178.2	192	123	76	40	26	16	155.9	251.9		
Turkey . . . . .	...	792	485	...	...	1,722	1,427	787	360	299	165	120.7	218.9
*Belgian Congo . . . . .	...	890	655	...	...	...	761	503	...	159	105	...	...
Egypt	1,852	2,053	1,664	90.2	111.3	7,280	10,904	7,672	1,523	2,281	1,605	66.8	94.9		
*Kenya . . . . .	...	...	...	...	...	...	74	47	...	15	10	...	...
*Nyasaland . . . . .	...	...	54	...	...	...	50	40	...	8	8	125.0	150.5
Uganda	1,493	1,759	1,240	84.9	120.4	1,200	1,668	1,190	251	349	249	71.9	100.8		
Anglo-Eg. Sudan	458	443	379	103.4	129.9	1,150	1,261	919	241	264	192	91.3	125.1		
*Tanganyika (4) . . . . .	...	...	...	...	...	188	258	158	39	54	33	73.0	119.6
TOTALS	66,908	78,708	67,826	85.0	98.6	120,004	160,162	107,287	25,106	33,508	22,445	74.9	111.8		

* Countries not included in the totals.

(1) See: *Summary of Government Cotton Reports*. — (2) Fifth and last report, referring to the entire cotton area of India. — (3) Season 1936-37. — (4) Exports.

belt. Planting begun locally as far north as the extreme south-eastern portion of North Carolina. The soil in most of the central States was too wet for field work, while planting in the north-eastern portion of Texas was being delayed by wet soil and by dryness in much of the South. The condition of the early crop in the extreme south of Texas was fair to good. During the week ending April 12 extensive and substantial rainfall together with cool temperatures, retarded preparations for the cotton crop in the northern part of the belt. A little planting was accomplished in the eastern part of the belt, as far north as the coastal plains of North Carolina, but in the central and northern parts of the belt planting of cotton had not yet begun. Early planted cotton was withstanding the drought fairly well in the southern coastal plains, but much of the crop was deteriorating in the lower part of the Rio Grande Valley. During the week ended April 19 the soil was too wet in the northern part of the cotton belt, but crops were making fair progress in the south and south-west.

British West Indies: Area and production of cotton (season August 1-July 31) are estimated as follows:—

	1938-39	1937-38	Average 1932-33 to 1936-37	% 1938-39 1937-38 = 100	% 1938-39 Average = 100
<i>Area (in acres).</i>					
<i>Sea-island variety:</i>					
Antigua	2,000	2,000	405	100.0	493.3
Barbados	25	—	232	—	10.6
British Virgin Islands	225	40	1) 80	568.7	284.4
Montserrat	4,453	4,380	3,155	101.7	141.1
St. Kitts-Nevis	3,900	4,826	2,093	80.8	186.4
St. Vincent	5,000	4,500	2,437	111.1	205.2
<i>Total</i>	<i>15,603</i>	<i>15,746</i>	<i>8,402</i>	<i>99.1</i>	<i>185.7</i>
<i>Marie Galante variety:</i>					
Grenada	5,250	5,250	4,750	100.0	110.6
St. Vincent	700	730	727	95.9	96.3
<i>Total</i>	<i>5,950</i>	<i>5,980</i>	<i>5,477</i>	<i>99.5</i>	<i>108.7</i>
<i>Production (in bales of 478 lb.).</i>					
<i>Sea-island variety:</i>					
Antigua	418	365	111	114.5	376.3
Barbados	5	—	31	—	16.2
British Virgin Islands	35	8	1) 19	427.8	187.8
Montserrat	1,133	1,381	1,263	82.0	89.7
St. Kitts-Nevis	1,008	1,545	554	65.3	181.0
St. Vincent	837	1,172	490	71.4	170.8
<i>Total</i>	<i>3,436</i>	<i>4,471</i>	<i>2,468</i>	<i>76.9</i>	<i>139.2</i>
<i>Marie Galante variety:</i>					
Grenada	502	477	624	105.2	80.5
St. Vincent	105	115	122	91.2	85.7
<i>Total</i>	<i>607</i>	<i>592</i>	<i>746</i>	<i>102.5</i>	<i>81.3</i>

(1) Average of two seasons: 1935-36 and 1936-37.

Montserrat: According to the latest estimate, the area cultivated to cotton for the 1939-40 is about 4,500 acres against 4,453 in 1938-39 and 3,731 on the average of the five years ending 1937-38; percentages 101.1 and 120.6. The corresponding production of ginned cotton is forecast at about 6,750 centals (1,410 bales of 478 lb.) against 5,415 (1,133) and 6,984 (1,461); percentages 124.7 and 96.7.

Indochina: In February the sprouting and growth of cotton plants were good on the whole in Annam. In Cambodia picking was nearly finished on the red soil lands, where yields were average, and was beginning on the river banks, where yields seem likely to be very poor.

Egypt: Up to the middle of March weather conditions were unfavourable to growth, particularly in Lower Egypt. Consequently, the area sown in Southern Delta was 12 per cent. less than last year. However, sowing progressed so well during the latter half of the month that it amounted to 65 per cent. of the allotted area in Delta North, and 85 per cent. in Upper Egypt (Girga excepted), and was nearly over in Delta South and Middle Egypt (Fayoum excepted). Resowing was about 10 per cent. in Lower Egypt, exceeding 20 per cent. in early areas. In Upper Egypt, however, resowing did not exceed 5 per cent. On the whole, germination and growth were satisfactory. Sowing is being finished. Resowing, hoeing and watering are progressing. Thinning of early areas has been started in a few localities.

Cotton ginned up to the end of March, in bales of 478 lb. net weight, was as follows:

Varieties	1939	1938	1937	1936	1935	1934	1933
Giza 7	356,702	458,548	383,738	248,949	182,100	89,354	32,148
Sakellaridis	—	85,167	103,868	176,883	182,823	222,045	223,050
Other varieties above:							
1 ⁵ / ₈ " (1)	138,356	102,652	91,205	94,320	49,827	105,408	68,983
1 ³ / ₄ "	41,690	20,734	39,111	40,881	39,488	71,323	67,333
1 ¹ / ₈ "	966,855	1,227,484	1,210,210	1,073,784	985,377	1,121,705	527,737
Total	1,503,603	1,903,585	1,819,132	1,634,817	1,439,615	1,610,735	919,251
Scarbo	30,593	32,912	40,797	36,497	30,915	31,745	21,250
Total production (including Scarbo)	1,523,000	2,281,223	1,887,164	1,768,581	1,565,583	1,776,908	1,026,977

* Second estimate. — (1) Including Sakellaridis.

By a decree of the Ministry of Agriculture of April 11, 1939, "in view of the general economic situation, particularly the excessive fall in cotton prices" the period for cotton ginning is extended 15 days i. e. all the 1938 cotton crop must be ginned by May 15, 1939. The amount of cotton ginned up to March 31, 1939 is already larger than the second estimate of cotton production.

Kenya: Normal warm and dry weather prevailed throughout February. It was reported that the yield of cotton in Nyanza province would be considerably less than last season's.

French Morocco: Cotton sowing began in March in the Port-Lyautey area. Plants were growing at the end of the month.

Nyasaland: It was reported in February that issues of cotton seed had been smaller than in the previous season.

Uganda: During February weather conditions were hot and dry in the Eastern Province with the exception of a few heavy thunder showers in certain localities. In Buganda, Toro, Bunyoro and part of Lango rains were more evenly distributed than is usual during February. It was expected that yields in the drier areas would be smaller than anticipated. (See in the general table the revised crop estimate).

Tanganyika: It was reported in February that the Mwanza cotton crop had been estimated at 196,000 centals (41,000 bales of 478 lb.).

Current information on Hemp.

Hungary: At the end of March the preparation of the land for hemp sowing was in progress.

Italy: Hemp sowings proceeded during the first half of March. Cold somewhat impeded operations during the second half of the month.

Current information on Hops.

Hungary: At the beginning of April the pruning of hops had begun.

Current information on Tobacco.

Greece: Tobacco production in Greece in 1938 amounted, according to official estimates, to 106,030,000 lb. against 151,471,000 lb. in 1937, a decrease of over 45,000,000 lb. This drop was due to the restriction by statute of the cultivation of tobacco, to the bad weather during transplantation and to poor rooting and low yields due to drought. These factors reduced the yield of tobacco so that though the area was only 12.8 per cent. lower, production was 30 per cent. lower. The decrease was not uniform in all departments. The largest decrease was in Thessaly where the area was 30.6 per cent. lower and production 60.2 per cent. less.

Hungary: At the beginning of April tobacco plants were sprouting in the seed-beds.

Italy: In the first half of March the growth of tobacco in nurseries was regular.

Argentina: Rain in February improved the condition of tobacco crops in Corrientes and the Chaco. In the other producing centres prospects are generally satisfactory.

Canada: The Canadian commercial tobacco crop reached record proportions in 1938. A preliminary estimate places production at 96,000,000 pounds from 83,000 acres as compared with 72,000,000 pounds from 69,000 acres in 1937. The increase was largely due to the expansion in flue-cured production, chiefly in Ontario.

CLASSIFICATION	Area thousand acres		% 1938 1937 = 100	Production thousand pounds		% 1938 1937 = 100
	1938	1937		1938	1937	
Bright flue-cured	63,230	53,347	118.5	73,750	55,374	133.2
Burley	9,215	6,142	150.0	10,650	6,371	167.2
Dark, air-cured or fire-cured	3,000	2,197	136.6	3,200	2,000	160.0
Cigar type	5,065	4,827	105.0	6,000	5,852	102.6
Large pipe	1,980	1,396	141.8	2,420	1,710	141.5
Small pipe	785	860	91.4	380	545	69.6
Miscellaneous	—	231	—	—	241	—
TOTAL	83,275	69,000	120.7	96,400	72,093	133.7

Indochina: There was drought in all parts in February. In Cochinchina picking was in progress. In Annam and Cambodia yields will be very poor, as crops have been seriously damaged.

Nyasaland: It was reported in February that, despite the continued heavy rainfall, the tobacco crop had made satisfactory progress. Normal yields were expected; it was anticipated that an increased quantity of good flue-cured tobacco would be reaped from the larger acreage planted this season, although the fire-cured crop would probably be smaller.

Current information on Other Products.

Cacao.

Gold Coast and Togoland under British Mandate: Main crop 1938-39. — The average rainfall and number of wet days in February were 3.02 inches and 6.5 wet days and were therefore slightly above the ten-year means of 2.57 inches and 5.2 wet days. Harvesting was completed. An increase in the percentage of mouldy, germinated, weevil and slaty beans was reported from up, country centres. Analyses of about 500 samples from farmers' stocks provided the following average percentages of defects: mould 2.7 per cent., germinated 4.2 per cent., slate 4.0 per cent., weevil 1.1 per cent., defective 1.2 per cent., The mean purity of the beans was 86.8 per cent.

The grade percentages are given in the following table.

Grade per cent. during February 1939.

	Farmers' Cacao (500 lots)	Original sampling (98,388,000 lb.)	Check sampling at ports (116,926,000 lb.)
I	24.9	37.4	48.4
II	39.0	55.7	49.1
III	23.8	6.6	2.5
Sub-grade	12.3	0.3	—
	100.0	100.0	100.0

The average number of beans in the standard 14 cubic inches space bean count for all ports during February was 126.1

Farmers' stocks were estimated at not more than 22.4 million lb. so that the fall in purity of cacao in farmers' hands is of small significance at that stage in the season and could have little effect upon the quality of cacao still to be exported.

All marketing continued at a steady rate although more slowly than in January. The total exports for the five months October to February amounted to 366 million lb., including 31 million lb. carry over; net exports of the new crop were therefore 335 million lb.

It was estimated that 90.0 million lb. of cacao were moved to the ports during the month by road and rail. Of this quantity 35.2 million lb. were received at Takoradi from Ashanti and the Western and Central Provinces, 41.4 million lb. entered Accra, and 13.4 million lb. were received at the Central Province ports.

The 1938-39 main crop was recently estimated at 582.4 million lb. by the Cacao Crop Estimate Committee. No decision was arrived at as to the exact stocks in mer-

chants' hands so that the usual estimates based on returns from exporting firms are not given, nor can the percentage estimates of the amount marketed, stocks in merchants' hands and in farmers' hands be computed. The aggregate estimate of the amount which is still to come in from all centres by the end of February was about 22.4 million lb.

MOVEMENT. — Movement statistics for February are as follows:

	February 1939	February 1938
	(million lb.)	
Railway off-loadings, Takoradi	33.9	0.8
<i>Exports:</i>		
Takoradi	43.6	2.8
Accra	46.7	2.8
Other ports	27.8	1.8
<i>All ports</i>	<i>118.1</i>	<i>7.4</i>
Eastern Frontier	4.0	0.0
<i>Total exports</i>	<i>122.1</i>	<i>7.4</i>

Tea.

India: In North India useful rain was received in most of the tea areas in February; no leaf was plucked. In South India dry weather continued and immediate prospects were considered to be only moderate; outturn was 10.12 per cent. ahead of that to the same date last year.

Indochina: The growth of tea plants was good in February in Annam.

Japan: The tea crop was in normal condition in April.

Nyasaland: It was reported in February that normal yields were expected from the tea crop.

Coffee.

Brazil: The following table shows private stocks of coffee in regulated warehouses on December 31, 1938, left over from the three harvests 1936-37 to 1938-39, according to an estimate made by the Departamento Nacional do Café, with corresponding figures for December 31, 1937 and June 30, 1938.

	1938		1937
	31 XII	30 VI	31 XII
	ooo centals		
São Paulo	12,774	5,642	9,275
In stations and trucks in São Paulo. .	—	1,371	2,749
Minas Geraes	509	312	919
Espírito Santo	61	34	395
Rio de Janeiro	41	6	146
In stations, trucks and warehouses in Rio	263	150	725
Paraná	25	87	68
	<hr/> 13,673	<hr/> 7,602	<hr/> 14,277

It should be noted that the large increase in the figure for São Paulo on December 31, 1938 is due to the fact that it also includes stocks in stations and trucks.

Indochina: The harvesting of the *Robustoïdes* variety of coffee was in progress in February in Tonkin.

Angola: The weather in February was favourable for coffee crops, the condition of which on March 1 was average.

Madagascar: The weather in February was rather dry and on the whole favourable for coffee plantations, the condition of which on March 1 was considered average.

Tanganyika: It was reported in February that prospects for this year's coffee crop from the Amsha and Moshi districts were favourable. The Bukoba coffee crop was estimated at 202,000 centals.

Hawaii: The condition of coffee crops on March 1 was considered good.

Groundnuts.

Bulgaria: According to the latest estimate, the area cultivated to groundnuts in 1938 was about 6,300 acres against 7,000 in 1937 and 2,300 on the average of the five years ending 1936; percentages 89.8 and 271.0. The corresponding production is estimated at about 44,400 centals against 65,100 and 20,700 percentages 68.1 and 214.3.

Argentina: In March the lifting of groundnuts was in progress in Corrientes with good yields. The crop condition in the other producing centres was generally satisfactory.

Burma: According to the final estimate, the area cultivated to groundnuts this year is about 847,000 acres against 895,700 in 1937-38 and 642,300 on the average of the five years ending 1936-37; percentages 94.6 and 131.9. The corresponding production is estimated at about 4,032,000 centals against 4,581,000 and 3,257,000; percentages 88.0 and 123.8.

Indochina: In Cambodia and Cochinchina groundnuts were affected by drought; yields in March were mostly mediocre. Sowing was in progress in North and Central Annam. Sprouting was regular. In Binh-dinh and Phu-yên harvesting had begun. Yields were satisfactory on uplands and mediocre on low-lying fields.

Netherlands Indies: Java and Madura. — The Department of Agricultural Statistics of the Central Statistical Office communicates the following details of the groundnut area:—

	1939 acres	1938 acres
Area harvested in February	46,700	40,000
Area harvested from January 1 to February 28 . .	84,300	79,600
Area of standing crops at the end of February .	130,700	147,500

Colza and Sesame.

Germany: Crop condition of colza was 3.4 at the beginning of April, 1939 against 2.3 in December 1938 and 2.4 in April 1938. Corresponding figures for rape were 3.6, 2.6 and 2.4.

Bulgaria: According to the latest estimate, the area cultivated to colza in 1938 was about 53,700 acres against 8,600 in 1937 and 20,800 on the average of the five years ending 1936; percentages 626.5 and 258.2. The corresponding production is estimated at about 454,700 centals (909,400 bushels) against 61,500 (123,000) and 148,600 (297,200); percentages 739.4 and 306.0.

The area cultivated to sesame in 1938 was about 4,050 acres against 13,450 in 1937 and 12,430 on the average of the five years ending 1936; percentages 30.1 and 18.9. The corresponding production is estimated at about 5,100 centals (260 short tons) against 31,100 (1,550) and 62,400 (3,120); percentages 16.4 and 8.2.

Hungary: Winter colza crops on the whole passed the winter well. At the end of March growth was retarded owing to cold.

Poland: The severe frosts, without snow, of the second half of December did much damage to colza. Crop condition on March 15 was 2.9 against 3.6 on December 15 and 3.5 on March 15 of last year.

Romania: At the middle of April colza was growing in good conditions. Local damage by insect pests was reported.

Yugoslavia: According to the latest estimate, the area cultivated to colza in 1938 was about 43,900 acres against 39,500 in 1937 and 26,400 on the average of the five years ending 1936; percentages 111.1 and 166.1. The corresponding production is estimated at about 197,500 centals (395,000 bushels) against 181,700 (363,500) and 180,000 (360,000); percentages 108.7 and 109.7.

The area cultivated to sesame in 1938 was about 3,500 acres against 3,270 in 1937 and 1,840 on the average of the five years ending 1936; percentages 107.3 and 190.6. The corresponding production is estimated at about 10,500 centals (525 short tons) against 7,750 (390) and 3,650 (180); percentages 135.7 and 287.5.

India: Condition of rape and mustard was reported in mid-March to be fair.

According to the supplementary estimate, the area cultivated to sesame this year was about 4,261,000 acres against 4,450,000 in 1937-38 and 4,282,000 on the average of the five years ending 1936-37; percentages, 95.8 and 99.5. The corresponding production is estimated at about 8,848,000 centals (442,400 short tons) against 10,416,000 (520,800) and 9,677,000 (483,800); percentages, 84.9 and 91.4.

Supplementary production figures.

As the 1938 or 1938-39 figure of production and area for most countries were published in the March number of the Monthly Crop Report and Agricultural Statistics, it is not necessary to repeat them again this month. Hence only new data and any modifications of the figures published last month are given in continuation. In another table is shown the total world production based on the figures received up to the time of going to press.

COUNTRIES	AREA					PRODUCTION							
	1938 and 1938-39	1937 and 1937-38	Average 1932 to 1936 and 1932-33 to 1936-37	% 1938 and 1938-39		1938 and 1938-39	1937 and 1937-38	Average 1932 to 1936 and 1932-33 to 1936-37	1938 and 1938-39	1937 and 1937-38	Average 1932 to 1936 and 1932-33 to 1936-37	% 1938 and 1938-39	
				1937 and 1937- 1938 = 100	Aver. = 100							1937 and 1937- 1938 = 100	Aver. = 100
WHEAT	ooo acres					ooo centals			ooo bushels				
Albania	95	99	96	95.7	98.9	990	982	988	1,650	1,636	1,646	100.9	100.2
Switzerland	195	174	156	112.1	124.9	4,683	3,710	3,029	7,805	6,184	5,048	126.2	154.6
Chosen	846	836	800	101.2	105.8	6,290	6,194	5,404	10,483	10,323	9,006	101.6	116.4
Iraq	1,800	1,950	1,440	92.3	125.0	13,228	12,787	8,367	22,046	21,311	13,944	103.4	158.1
Palestine	441	558	489	79.0	90.2	980	2,809	1,592	1,633	4,682	2,654	34.9	61.5
Transjordan	—	—	—	—	—	1,846	2,491	1,285	3,127	4,152	2,142	75.3	146.0
New Zealand	185	186	257	99.4	71.9	3,546	3,626	5,046	5,910	6,043	8,410	97.8	70.4
RYE													
Albania	8	9	7	89.5	112.5	72	84	76	129	151	136	85.8	94.9
Switzerland	39	37	40	103.3	95.4	811	726	737	1,449	1,296	1,316	111.7	110.0
Fr. Morocco	9	9	4	92.3	215.2	25	16	14	45	28	25	161.4	180.5
BARLEY													
Albania	13	14	13	91.8	99.6	92	128	137	192	267	286	71.9	67.0
Greece	541	524	527	103.3	102.6	5,412	4,830	4,260	11,276	10,064	8,875	112.0	127.1
Switzerland	11	11	14	100.9	78.1	203	186	188	423	387	393	109.3	107.6
Chosen	2,738	2,688	2,523	101.9	108.5	24,721	32,217	22,928	51,504	67,119	47,767	76.7	107.8
Iraq	2,533	2,000	1,452	126.7	174.4	25,097	12,566	7,868	52,286	26,180	16,391	199.7	319.0
Palestine	502	553	544	90.8	92.2	1,471	1,663	1,114	3,065	3,464	2,320	88.5	132.1
Transjordan	—	—	—	—	—	992	1,168	505	2,067	2,434	1,052	84.9	196.5
New Zealand	25	25	19	97.4	127.8	495	543	327	1,031	1,131	681	91.2	151.4
OATS													
Albania	28	29	24	98.6	119.5	248	246	226	776	768	705	101.0	110.0
Switzerland	28	27	31	102.5	89.1	559	529	514	1,747	1,653	1,607	105.7	108.7
Chosen	202	221	284	91.6	71.2	1,879	2,268	962	5,871	7,088	3,006	82.8	195.3
New Zealand	53	58	80	90.8	65.9	964	1,056	1,367	3,012	3,301	4,273	91.3	70.5
RICE (ROUGH)													
Bulgaria	19	14	19	134.6	100.1	421	348	386	936	773	858	121.2	109.1
Yugoslavia	9	6	6	137.3	135.2	141	65	78	313	145	173	215.9	180.5
Chosen	4,069	4,018	4,092	101.3	99.4	99,551	110,513	72,591	221,220	245,580	611,310	90.1	137.1
POTATOES													
Bulgaria	49	54	36	91.2	136.3	1,401	3,220	2,056	2,334	5,366	3,427	43.5	68.1
Italy (a)	85	79	70	107.4	120.0	8,051	7,516	4,981	13,418	12,526	8,302	107.1	161.6
Switzerland	969	965	982	100.4	98.6	57,000	63,334	54,093	94,998	105,554	90,154	90.0	105.4
Yugoslavia (b)	123	121	115	101.8	106.9	18,144	19,353	15,277	30,240	32,255	26,295	93.8	115.0
Yugoslavia (a)	172	169	173	101.8	99.7	8,316	8,475	8,373	13,859	14,125	13,955	98.1	99.3
Yugoslavia (b)	486	470	452	103.4	107.3	29,199	26,824	25,148	48,665	44,706	41,913	103.9	116.1
Yugoslavia (c)	—	—	—	—	—	199	418	352	332	696	587	47.6	56.5

COUNTRIES	AREA					PRODUCTION							
	1938 and 1938-39	1937 and 1937-38	Average 1932 to 1936 and 1932-33 to 1936-37	% 1938 and 1938-39		1938 and 1938-39	1937 and 1937-38	Average 1932 to 1936 and 1932-33 to 1936-37	1938 and 1938-39	1937 and 1937-38	Average 1932 to 1936 and 1932-33 to 1936-37	% 1938 and 1938-39	
				1937 and 1937- 1938 = 100	Aver. = 100							1937 and 1937- 1938 = 100	Aver. = 100
POTATOES (cont.)	ooo acres					ooo centals			ooo bushels				
Egypt	10	10	8	94.2	123.1	942	995	768	1,570	1,659	1,280	94.6	122.7
Tunisia	7	6	5	120.0	147.1	121	220	150	202	367	250	55.0	80.9
Chile	134	127	128	105.5	104.1	...	9,644	10,322	...	16,073	17,203	...	...
SUGAR-BEET									ooo short tons				
Bulgaria	29	26	19	111.7	150.5	2,834	4,614	3,248	142	231	162	61.4	87.3
Switzerland	7	6	4	122.9	188.5	2,050	1,907	1,368	103	95	68	107.5	149.8
Yugoslavia	72	52	78	139.3	92.7	12,287	8,910	12,454	614	445	623	137.9	98.7
United States	930	755	811	123.2	114.6	232,280	174,980	178,220	11,614	8,749	8,911	132.7	130.3
OLIVES									ooo Am. gallons				
Italy d)	—	—	—	—	—	3,979	6,002	4,262	53,057	80,023	56,822	66.3	93.4
Yugoslavia									ooo pounds				
	e)	—	—	—	—	666	1,065	327	66,625	106,514	32,718	62.6	203.6
	d)	—	—	—	—	135	159	74	1,797	2,118	990	84.8	181.5
Cyprus									ooo Am. gallons				
	e)	—	—	—	—	186	382	102	18,552	38,216	10,221	48.5	181.5
	d)	—	—	—	—	—	—	—	—	—	—	—	—
Palestine	135	132	122	102.1	110.9	e) 850	1,042	342	85,037	104,162	34,239	81.6	248.4
FLAX						ooo bushels							
Bulgaria	8	10	3	77.9	228.4	f) 6	11	4	604	1,061	440	56.9	137.2
Yugoslavia									ooo bushels				
						g) 18	36	16	32	64	29	49.3	110.3
						f) 285	244	234	28,478	24,402	23,426	116.7	121.6
HEMP									ooo bushels				
						g) 30	29	23	53	52	40	102.2	132.2
									ooo pounds				
Bulgaria	25	20	14	122.4	176.6	f) 91	101	58	9,062	10,142	5,814	89.3	155.9
Yugoslavia						g) 49	56	43	4,870	5,589	4,297	87.1	113.3
						f) 1,229	1,100	777	122,921	110,048	77,705	111.7	158.2
						g) 66	99	39	6,597	9,901	3,859	66.6	171.0
HOPS						ooo pounds							
Germany (3)	21	23	24	91.9	88.8	21,867	22,656	16,309	21,867	22,656	16,309	96.5	134.1
TOBACCO													
Albania	5	5	4	96.7	128.4	4,612	3,307	3,076	4,612	3,307	3,076	139.5	149.9
Greece	206	236	200	87.2	103.0	106,030	151,471	111,530	106,030	151,471	111,530	70.0	95.1
Poland	20	17	13	114.5	155.0	32,210	30,035	19,595	32,210	30,035	19,595	107.2	164.4
Switzerland	1	1	1	102.0	110.7	3,042	2,386	2,149	3,042	2,386	2,149	127.5	141.5
Yugoslavia	40	51	35	79.7	117.0	32,425	45,818	25,394	32,425	45,818	25,394	70.8	127.7
Canada	83	69	49	120.7	170.9	96,400	72,093	47,643	96,400	72,093	47,643	133.7	202.3
Chosen	48	46	37	105.4	129.8	61,695	58,838	41,631	61,695	58,838	41,631	104.9	148.2
SERICULTURE	ooo ounces												
Chosen	4) 344	4) 447	4) 355	76.9	97.3	5) 58,022	5) 59,716	5) 47,803	5) 58,022	5) 59,716	5) 47,803	97.2	121.4
Japan	4) 4,519	4) 5,074	4) 5,684	89.1	79.5	5) 622,171	5) 710,765	5) 732,163	5) 622,171	5) 710,765	5) 732,163	87.5	85.0

(a) Winter potatoes. — (b) Spring potatoes. — (c) Mixed crop. — (d) Olive-oil. — (e) Olives. — (f) Fibre. — (g) Seed.
 (1) Average of four years. — (2) Average of two years. — (3) Not including Austria. — (4) Silkworm eggs in incubation.
 — (5) Cocoons.

Totals of world agricultural production.

The following totals have been obtained from the data in the tables published for each product in March, which have been revised and completed. With the name of each product is indicated the number of countries for which data for 1938 are at present available and also the percentage of the average world production in 1932 to 1936 as shown in the *International Yearbook of Agricultural Statistics 1938-39* (in the press) in which nearly all producing countries appear.

CROP (not including U. S. S. R. and China 1)	AREA					PRODUCTION							
	1938 — 1938-39	1937 — 1937-38	Average 1932 to 1936 — 1932-33 to 1936-37	% 1938 — 1938-39		1938 — 1938-39	1937 — 1937-38	Average 1932 to 1936 — 1932-33 to 1936-37	1938 — 1938-39	1937 — 1937-38	Average 1932 to 1936 — 1932-33 to 1936-37	% 1938 — 1938-39	
				1937 — 1937-38 = 100	Average 1937-38 = 100							1937 — 1937-38 = 100	Average 1937-38 = 100
1938-39	1937-38	1932-33 to 1936-37	1937-38 = 100	age = 100	1938-39	1937-38	1932-33 to 1936-37	1938-39	1937-38	1932-33 to 1936-37	1937-38 = 100	age = 100	
Thousand acres					Thousand centals			Thousand bushels					
Wheat (50 countries, 95 %)	269,378	258,313	240,353	104.3	112.1	2,611,380	2,194,522	2,074,345	4,352,213	3,657,463	3,457,173	119.0	125.9
Rye (31 countries, 97 %)	47,134	46,108	45,574	102.2	103.4	586,537	485,109	528,410	1,047,391	866,268	943,592	120.9	111.0
Barley (43 countries, 85 %)	59,361	60,292	57,962	98.5	102.4	707,640	629,757	607,960	1,474,276	1,312,017	1,266,605	112.4	116.4
Oats (37 countries, 97 %)	89,920	90,173	92,535	99.7	97.2	1,078,154	1,020,186	980,331	3,369,209	3,188,058	3,063,512	105.7	110.0
Maize (25 countries, 85 %)	144,865	147,006	155,089	98.5	93.4	2,106,461	2,134,894	1,887,126	3,761,544	3,812,313	3,369,868	98.7	111.6
Rice (rough) (16 coun- tries, 82 %) (2) . . .	114,243	112,837	111,429	101.2	102.5	1,625,128	1,689,867	1,606,648	3,611,323	3,755,184	3,570,258	96.2	101.2
Potatoes (30 coun- tries, 91 %)	30,431	30,562	30,002	99.6	101.4	3,504,431	3,804,074	3,226,846	5,840,602	6,339,996	5,377,970	92.1	108.6
Sugar-beet (21 coun- ties, 90 %) (2) . . .	7,994	7,616	7,470	105.0	107.0	1,556,425	1,649,407	1,286,044	Thousand short tons				
									77,820	82,469	64,301	94.4	121.0
Cotton (ginned) (17 countries, 95 %) (2)	66,908	78,708	67,826	85.0	98.6	120,004	160,162	107,287	Thousand bales of 478 lb.				
									25,106	33,508	22,445	74.9	111.8
Linseed (17 countries, 98 %)	13,168	13,369	13,606	98.5	96.8	56,754	54,767	57,735	Thousand bushels				
									101,346	97,799	103,098	103.6	98.3
Flax (fibre) (15 coun- tries, 98 %) (2) . . .	5,738	6,343	6,405	90.5	89.6	16,934	17,278	15,144	Thousand pounds				
									1,693	1,728	1,514	98.0	111.8
Hemp seed (7 coun- try, 72 %)	363	361	316	100.7	114.8	1,587	1,583	1,528	159	158	153	100.3	103.9
Hemp (fibre) (7 coun- tries, 65 %)	541	514	388	105.3	139.5	4,594	4,319	2,853	459	432	285	106.4	161.1
Hops (6 countries, 77 %)	83.8	88.7	84.8	94.4	98.8	96,043	105,434	88,216	9,604	10,543	8,822	91.1	108.9
Tobacco (19 countries, 47 %)	2,797	2,953	2,456	94.7	113.9	2,449,295	2,619,261	2,070,957	244,930	261,926	207,096	93.5	118.3
Olive oil (18 countries, 99 %)	—	—	—	—	—	16,544	24,871	18,314	Thousand American gallons				
									220,580	331,605	244,184	66.5	90.3
Vines (Wine) (17 coun- try, 78 % of the total)	—	—	—	—	—	3,552,604	3,075,257	3,244,639	Thousand Imperial gallons				
									4,266,358	3,693,108	3,896,519	115.5	109.5
Silk (10 countries, 98 %) (2)	—	—	—	—	—	790,829	901,297	896,500	Thousand pounds 3)				
									790,829	901,297	896,500	87.7	88.2

(1) For production in China, see Crop Report for March. — (2) Including U. S. S. R. — (3) Cocoons.

Current information on Fodder Crops.

Germany: Crop condition figures for the beginning of April 1939, October 1938 and April 1938 were respectively as follows: clover, 3.1, 2.7 and 2.6; alfalfa, 2.9, 2.6 and 2.5; irrigated meadows, 2.8, 2.5 and 2.6; other meadows, 3.0, 2.7 and 2.7; pasture, 3.0, 2.8 and 2.7.

Bulgaria: The latest estimates of production of the principal fodder crops in 1938, with comparative figures for 1937 and the average of 1932-36, are given below:—

		1938	1937	Average 1932-36	% 1938 1937 = 100	Average = 100
Vetches and black peas	(000 centals) * 10,275	5,132	(1) 3,339	—	—	
	(000 sh. tons) * 514	257	(1) 167			
Alfalfa hay	(000 centals) 4,286	5,743	3,547	74.6	120.8	
	(000 sh. tons) 214	287	177			
Millet (feed) . . .	(000 centals) 807	1,918	1,575	42.1	51.3	
	(000 sh. tons) 40	96	79			
Mangels	(000 centals) 2,408	3,536	1,225	70.6	204.0	
	(000 sh. tons) 125	177	61			
Permanent meadow	(000 centals) 15,120	19,624	15,827	77.0	95.5	
	(000 sh. tons) 756	981	791			

* Including seed. — (1) Average of 1934 and 1936.

France: The cold and wet weather of March was unfavourable for the growth of fodder crops but the first half of April was much more favourable and led to rapid growth. The outturn of rape, colza, vetches and red clover is expected to be mediocre. Growth at the end of March was sufficient to permit grazing in the south and on healthy, well exposed lands in general. The prospective shortage of hay and the poor production of green fodder will in any case induce farmers to pasture animals earlier than usual. In the mountains, however, indoor feeding had to be prolonged.

Hungary: At the beginning of April the planting of fodder beet had begun. In most areas alfalfa and clover had wintered well, but growth was retarded by cold weather. The growth of permanent meadows and pastures had begun but was retarded by the cold.

Ireland: The weather in March was cold and growth very backward. Pastures afforded less keep than usual, following the severe winter, but fodder supplies, though scarce, were anticipated to be sufficient for requirements.

Italy: The growth of meadows, pasture and annual fodder crops was delayed by cold. Unfavourable weather at the end of March impeded normal development.

Latvia: At the beginning of April only limited supplies of ordinary fodder of poor quality were available. Stocks of fodder roots were almost exhausted whereas those of potatoes were sufficient and of satisfactory quality. Only small quantities of concentrated feed were used for stock.

Poland: The winter was rather unfavourable for clover crops. Consequently, crop condition on March 15 was 2.9 against 3.2 on December 15 and 3.1 on March 15 of last year.

United Kingdom: The weather in March was variable. Cold north and east winds predominated with local snow or sleet. Rainfall was above normal in the east and in

Scotland. Pastures made little growth during the month. Winter keep was drawn on heavily and a shortage of hay was reported in some districts. An extensive use of concentrates was necessary to maintain milk yields.

Switzerland: Fields were snow-covered until the end of March and growth of grass is consequently late. Soil moisture, however, is sufficient and growth is likely to be vigorous with a rise in temperature. Despite the delay, grass looks well. Crop condition on April 1, 1939, in the system of the country, was 81 for temporary meadows (against 81 on April 1, 1938 and 84 on April 1, 1937) and 81 for permanent meadows (against 80 and 84).

Argentina: Rain in February considerably improved the condition of pastures in the country as a whole, except for parts of Buenos Aires Province and of Patagonia.

Algeria: Fodder cereals and rotation fodder crops had made good growth at the end of March. The growth of pastures, however, was slow, owing to the inclement weather of March. Spring growth was everywhere in evidence, seeds had germinated and it was estimated that if the temperature continued fairly high in April pastures would be normal.

Egypt: Growth of clover crops is satisfactory. Third cutting is progressing. Fourth cutting has been started in several localities. In Upper Egypt irrigated areas left for seeds are progressing towards maturity. Harvesting of early areas has been started. Crop condition is satisfactory.

French Morocco: Pastures in March were generally abundant, except in the mountains, and stock found plenty of feed, even in the south, which is rather rare.

LIVESTOCK AND DERIVATIVES

Pigs in Denmark.

(Thousands)

CLASSIFICATION	1939		1938									1937
	March 25	Feb. 11	Dec. 31	Nov. 19	Oct. 8	Aug. 27	July 16	June 18	May 7	March 26	Feb. 12	Nov. 20
Boars for breeding.	18	18	17	16	16	16	16	17	17	17	17	18
Sows in farrow for first time . . .	119	109	82	67	54	40	55	63	93	108	97	51
Othersows in farrow	152	145	143	147	156	160	155	145	132	126	142	139
Sows in milk . . .	78	77	72	68	72	78	82	89	81	84	60	65
Sows not yet covered (and not for slaughter) .	19	19	23	24	25	26	24	23	21	16	15	24
Sows for slaughter.	9	9	9	13	14	11	10	9	9	8	8	16
Total of sows . . .	377	359	329	319	321	315	326	329	336	342	322	295
Sucking pigs not weaned	652	648	603	581	642	678	689	731	687	743	512	550
Young and adult pigs for slaughter:												
Weaned pigs under 35 kg. . .	636	618	639	676	706	726	717	698	677	566	590	839
Pigs of 35 and under 60 kg. .	550	571	615	608	645	613	669	591	499	522	607	685
Fat pigs of 60 kg. and over .	491	505	503	561	516	542	428	429	451	539	523	594
Total pigs . . .	2,724	2,719	2,706	2,761	2,846	2,890	2,845	2,795	2,667	2,729	2,571	2,981

Number of sheep and wool production in Estonia:

CLASSIFICATION	1938	1937	1936	1935	1934	1933	1932	1931	1930
Sheep (thousands)	650.0	650.5	584.1	593.2	552.1	541.4	514.4	478.6	467.2
Wool produced (thousand lb.) . .	2,452.4	2,465.9	2,258.0	2,030.7	2,087.8	2,235.3	1,732.0	1,507.7	1,475.6
Yield per sheep (lb.)	3.8	3.8	3.9	3.4	3.8	4.1	3.4	3.2	3.2

Livestock, meat production and meat markets in France in 1938.

General livestock conditions and meat production. — Feeding conditions were unfavourable in 1938 and, for cattle, the year was also marked by a severe outbreak of foot-and-mouth disease. Fodder production in 1937 had been rather good and winter conditions were favourable but the following spring and summer brought unfavourable conditions which did not improve appreciably until the autumn. The fodder production of 1938 was consequently mediocre. Foot-and-mouth disease had serious effects on herd numbers and births and on the conditions and employment of animals.

The official statistics of meat consumption have not yet been published but the figures compiled by the *Association générale des Producteurs de Viande* indicate the changes that have occurred, at least as far as State controlled and taxed slaughterings are concerned. These figures do not cover meat obtained from farm slaughterings and consumed on farms, this proportion being substantial in the case of pigs (1).

Index Numbers of Quantities of Meat subject to Slaughter Tax.(calculated from the figures of the *Association générale des Producteurs de Viande*)

Years	1927 = 100					
	Beef	Veal	Pigmeat	Horse-meat	Mutton and Goat meat	Total
1938	115	117	162	100	101	124
1937	114	117	166	112	95	124
1936	119	125	164	115	89	127
1935	116	126	167	118	87	126
1932	97	109	149	122	97	112
1931	94	99	152	128	87	108
1929	116	108	121	128	99	114
1927	100	100	100	100	100	100

Slaughterings of adult cattle increased slightly on 1937 but those of young animals showed no change while horses decreased considerably. The main features were a large increase in sheep slaughterings and a decrease in pig

(1) See note on the following page.

slaughterings unless there was an increase in the farm slaughterings of pigs, an unlikely development since the prices of live animals were high (1).

The changes noted in slaughterings should correspond at least roughly with the change in the number of livestock. Net additions to and withdrawals from animal numbers in 1938 were appreciable for all species.

Net Imports (+) or Net Exports (—) of Live Animals.

	1938	1937	1936	1935	1934	1933
	(Thousand head)					
Cattle	— 2.9	+ 4.9	+ 9.0	— 6.3	+ 1.9	+ 24.7
Sheep	+ 800.1	+ 870.6	+ 1,053.2	+ 868.3	+ 785.0	+ 790.9
Pigs	+ 10.0	+ 13.1	+ 35.4	+ 27.0	+ 77.5	+ 172.7
Horses for meat. +	9.9	+ 47.3	+ 18.0	+ 6.2	+ 7.3	+ 15.2

The changes are mainly due to a decrease in animal imports from Algeria and Tunisia where feeding conditions were poor and losses from foot-and-mouth disease serious. There was however, some recovery in exports, especially cattle.

A rough calculation based on average coefficients shows the following changes since 1937 in the slaughterings of domestic animals:—

Increases: 25,000 to 30,000 cattle, mainly adult animals; 250,000 to 300,000 sheep; 15,000 to 20,000 horses;

Decrease: about 100,000 pigs.

Apart from their direct effects on market supplies and the numbers of animals, imports and exports merit attention for their own interest. Trade in meat and animal derivatives must be considered as well as that in live animals.

*Net Imports (+) or Net Exports (—) of Dead Meat,
in various forms, and Animal Fats.*

	1938	1937	1936	1935	1933
	(000 lb.),				
<i>Fresh and frozen meat:</i>					
Imports:					
Mutton . . .	(+ 17,879)	(+ 23,589)	(+ 18,078)	(+ 17,571)	(+ 19,886)
Pigmeat , . .	(+ 463)	(+ 3,351)	(+ 3,682)	(+ 2,866)	(+ 17,769)
Beef and other meats , . .	(+ 27,624)	(+ 29,939)	(+ 21,627)	(+ 25,508)	(+ 47,311)
Total	+ 45,966	+ 56,879	+ 43,387	+ 45,945	+ 84,966

(1) The official figures, published when the *Crop Report* was in the press, show variations very similar to those indicated above for all Kinds of meats, except for pigmeat. The quantity of pigmeat from commercial slaughterings was the same in 1938 and in 1937, but the slaughterings for home consumption on farms show a diminution and the percentage diminution for total pigmeat production between 1937 and 1938, as indicated by the official figures, is equal that indicated by the unofficial and incomplete figures above, i. e. — 2.6 per cent.

	1938	1937	1936	1935	1933
Exports:					
All kinds of meat, . . .	— 3,269	— 2,205	— 2,668	— 4,718	— 2,778
Surplus	+ 42,704	+ 54,674	+ 40,719	+ 41,204	+ 82,211
<i>Salted, prepared and preserved meat:</i>					
Surplus	+ 9,700	+ 11,080	+ 12,721	+ 7,562	+ 15,388
<i>Pigmeat:</i>					
Surplus	— 2,579	— 2,072	— 2,579	— 3,285	— 728
<i>Fats and lard:</i>					
Surplus	— 19,599	+ 2,513	— 11,883	— 40,014	+ 5,181

Like imports from foreign countries, which are subject to strict quotas, and from North Africa, exports of live cattle, meat, fats and lard declined. The drop in domestic prices of cattle and the fall in the exchange seem to have been the real causes of the recovery.

The official returns are not a census taken at a fixed date but estimates made at the beginning of the winter. No indication of the date is given but it appears that in the last two years the returns have been made on November 1, not on December 31. The figures for 1938 and 1937 would thus be comparable between themselves but not strictly comparable with those of earlier years. On the other hand, an anomaly appears in the figures for mules for 1938. The increase in mule numbers cannot be accounted for by any visible, supplementary imports and it occurred practically entirely in one *département*, that of Gironde where the numbers increased from 3,660 to 30,700 between the end of 1937 and the end of 1938. Furthermore, as a result of the enquiry into milk production, the number of cows at the end of 1937 was 50,000 greater than the figure in the annual estimate. This increase has affected the total number of cattle and it must be kept in mind when comparisons are made with previous years.

If these reserves and corrections are made, it is possible to observe appreciable changes in the livestock situation.

The decrease in *horses and asses* is one of the most marked that have occurred since the war. It was 1.8 per cent. for horses compared with an average of 1.0 per cent. in years prior to 1937, the previous largest being 1.4 in 1936. For asses it was 5.3 per cent. compared with an average of 2.0 per cent. and a maximum of 5.4 per cent. in 1932. The decrease was partly due to slaughtering for meat (15,000 to 20,000 more than in 1937 of a total decrease of 60,000 head). On the other hand, the fall in the number of colts and fillies was relatively light (1.4 per cent. only) though there were marked decreases in the years 1929 to 1934. The decline in numbers, at least in the case of horses, thus seems to be due mainly to the earlier downward trend. The latter was marked by smaller output of live animals and by considerable slaughtering for meat, and it is apparently reflected in a decline in the numbers of young mares. Hence a persistent decline in the natural growth in horse numbers.

Number of Livestock on Farms.

	1938	1937	1936	1935	1934	1933	1931	1929	1920
	thousand head								
<i>Horses</i>	2,692	2,742	2,774	2,810	2,838	2,878	2,919	2,986	2,635
3 years old and over.	2,220	2,263	2,297	2,326	2,333	2,351	2,358	2,345	2,096
under 3 years old	472	479	477	484	505	528	561	641	539
<i>Mules</i>	135	111	117	123	126	130	144	143	181
<i>Asses.</i>	185	195	203	211	220	223	241	234	298
<i>Cattle.</i>	15,622	15,805	15,762	15,670	15,704	15,830	15,434	15,631	13,217
bulls	280	266	263	264	259	261	255	213	246
bullocks	1,236	1,228	1,274	1,297	1,346	1,362	1,389	1,318	1,338
cows	8,732	(1)8,748	8,693	8,662	8,653	8,572	8,274	8,196	6,830
1 year old and over	3,113	3,155	3,187	3,158	3,139	3,192	3,094	3,033	2,830
under 1 year old	2,260	2,307	2,345	2,288	2,307	2,443	2,421	2,871	1,973
<i>Sheep.</i>	9,872	9,994	9,788	9,558	9,571	9,730	9,845	10,452	9,406
rams	200	199	197	191	192	200	212	244	203
ewes 1 year old and over.	6,157	6,221	6,115	5,976	5,929	5,981	6,009	6,087	5,818
sheep 1 year old and over	1,011	1,023	1,004	998	1,046	1,071	1,211	1,545	1,085
lambs under 1 year old	2,505	2,551	2,474	2,393	2,404	2,477	2,413	2,575	2,301
<i>Goats.</i>	1,416	1,447	1,359	1,316	1,405	1,448	1,488	1,885	1,341
<i>Pigs</i>	7,127	7,117	7,089	7,043	7,044	6,769	6,398	6,102	4,942
boars	40	40	41	40	39	39	37	34	29
sows	875	887	897	877	884	870	814	771	709
pigs for fattening, 6 months old and over	2,581	2,581	2,586	2,604	2,565	2,483	2,366	2,265	1,772
pigs for fattening, under 6 months old	3,631	3,609	3,565	3,522	3,556	3,377	3,181	3,032	2,432

(1) Comprising 4,156,000 cows kept exclusively for milk and 3,856,000 kept for milk and other purposes, a total of 8,012,000 milk cows representing 90 per cent. of the total number of cows.

Cattle suffered especially from poor feeding conditions and foot and-mouth disease. The latter resulted directly in higher mortality and in a reduction in calvings and indirectly in more slaughterings of cows and heifers and fewer steer slaughterings.

The total number of adult cattle declined and, still more remarkable, the number of cows decreased considerably but the number of steers and oxen increased slightly. This dual development is the reverse of previous experiences.

Index Numbers of Numbers of Adult Cattle.

	Cows	1931 = 100 Steers	Bulls
1938	(*) 104.9	89.0	109.8
1937	(*) 106.3	88.4	104.4
1936	105.1	91.7	102.9
1935	104.7	93.4	103.6
1934	104.6	96.9	101.6
1933	103.6	98.0	102.1
1931	100.0	100.0	100.0

(*) Calculated with an allowance for the correction made in 1937 in the numbers of cows.

Total adult cattle numbers fell by 96,000 head. The increase in cattle sold for meat or export was 25,000 to 30,000 head. The difference between the two figures is due partly to foot-and-mouth disease and partly to the fact that fewer young animals, especially heifers, which reached their third year in 1937, were kept for breeding. The more marked effects of foot-and-mouth disease on cows and heifers, smaller production and reduced working capacity undoubtedly resulted in greater slaughterings for meat while steers and bulls, young and adult were preserved.

The larger percentage of the slaughterings of cattle of one year old and over at the end of 1937 is shown by the fall in the proportion of this category to that of young calves born in the two previous years and not slaughtered in the year of their birth; this proportion, which was increasing fairly considerably, declined in 1937 and 1938. In contrast to previous years therefore, it seems that in 1938 a larger number of animals born during the two preceding years were killed and less calves born during the year. The decrease in the number of young cattle under one year old is thus due simply to a decline in the number of births and this decline seems to have been larger than would appear from the decrease in the number of this category. The same phenomenon was noticeable in 1937, while in previous years the decrease in the number of calves, born during the year and not slaughtered in the same year, per 100 cows existing in the preceding winter resulted from the play of two opposing factors, namely, a steady increase in the number of births, due to the increase in the number of cows, and an increasing proportion of slaughter of calves.

Finally, it should be noted that, mainly owing to the epidemic of foot-and-mouth disease, the natural increase in the number of cattle was less than the slightly increased demand in 1938 on the meat market. The resultant double decrease in the number of young cattle and of full-grown cows took place for the first time for many years.

Percentage Comparisons of Young Cattle at the end of the year.

	Proportion of young cattle one year old and over not slaugh- tered during year to calves under one year old at end of the two prece- ding years.	Proportion of young cattle of one year old and over, not slaughtered du- ring year, to number of cows at end of pre- ceding year.
	%	%
End of 1938	66.9	25.5
" 1937	68.1	(*) 26.4
" 1936	69.4	(*) 26.9
" 1935	66.5	(*) 26.3
" 1934	64.0	(*) 26.9
" 1933	65.4	(*) 28.7
" 1932	62.6	(*) 29.6
" 1931	57.4	(*) 29.0

**) Calculated with an allowance for the correction made in 1937 in the numbers of cows.

The same situation is found with a more general character, but for different reasons, in the case of *sheep and goats*. The decrease of 153,000 in the aggregate number of sheep and goats does not correspond at all to the much larger increase of 250,000 to 300,000 in slaughterings. Thus, the natural increase in the numbers of sheep and goats, resulting from the recovery in these categories in the two previous years, was insufficient to satisfy a heavily increased demand due to the development of mutton consumption and to the lower imports of sheep from North Africa. Among sheep the largest decrease was in the number of full-grown sheep for fattening (7.1 per cent.), while their numbers had risen 2.5 per cent. between 1935 and 1937, but the number of lambs under one year old, not slaughtered, per 100 ewes at the beginning of the winter has fallen to 40.3 against 41.7 in 1937 and 41.4 in 1936; the net increase in numbers was thus small.

The total number of lambs under one year old decreased (— 1.9 per cent. against an increase of 6.6 per cent. between 1935 and 1937) and there was also a decrease in the number of full-grown ewes (— 1.1 per cent., against an increase of 4.9 per cent. between 1935 and 1937).

The situation is exactly the reverse in the case of *pigs*. There was a slight increase in the total number, but this rise of 10,000 does not at all correspond to the fall in slaughterings (100,000). Except in the unlikely case of a large development of slaughterings and of direct consumption on the farm, there was thus over-production of pig-meat, in spite of a falling off in the natural increase of pigs. This is reflected in the fairly considerable decrease in the number of full-grown sows (1.3 per cent. compared with 1937 and 2.5 per cent. compared with 1936), while the over-production of meat is shown particularly in a slight increase in the number of animals under six months old for fattening (0.6 per cent.) in face of a decline in consumption. The comparatively high number of young pigs, not slaughtered, per 100 sows, during the preceding winter is an even clearer index of over-production (40.9 per cent. against 40.2 in 1937, 40.7 in 1936 and 39.8 in 1935).

The meat market and prices during the 1938-39 season. — The meat market was fairly irregular during 1938.

While in 1937 the general tendency to rise had practically offset the seasonal decrease during the summer, in 1938 there was a sudden, very sharp drop in cattle prices at the end of the spring, this market being affected by the general conditions of stock breeding. The drop was at first heavier in the case of unfattened cattle (— 26.3 per cent. between April and June) and for calves (— 24.6 and — 28.3 per cent. according to quality). Subsequently, the prices of calves increased and nearly returned to the level of January 1938. The prices of full-grown unfattened cattle (second quality) also rose considerably, but later fell to the lowest level of the previous summer and the quotations for extra-quality fat cattle remained very low. The average price of 1938, however, for all categories remained higher than in 1937, but the increase is very small compared with the fall in the purchasing power of money due to currency devaluation.

On the other hand, the prices of sheep and pigs increased, the rise was higher for unfattened sheep than for fat sheep, owing to the lower imports from Algeria

Average Prices of Live Meat at La Villette (Paris).

	Beef		Veal		Mutton		Pork	
	Extra quality	Second quality	Extra quality	Second quality	Extra quality	Second quality	Extra quality	Second quality
	francs per 100 kg. net weight of meat						francs per 100 kg. live weight	

Monthly Average.

Absolute Data (1).

March 1939	1,114	810	1,776	1,431	2,044	1,569	940	829
February "	1,098	768	1,741	1,379	2,029	1,530	941	826
January "	1,119	816	1,739	1,390	2,089	1,580	960	850
December 1938	1,081	853	1,730	1,499	2,018	1,510	1,011	910
November "	1,055	884	1,693	1,490	1,961	1,480	1,011	911
October "	1,084	898	1,617	1,415	1,930	1,503	982	879
September "	1,016	834	1,532	1,318	1,799	1,387	979	887
July "	1,020	824	1,322	1,034	1,680	1,215	943	841
June "	1,042	802	1,352	1,052	1,682	1,217	902	804
April "	1,230	953	1,770	1,468	1,841	1,230	895	820
January "	1,178	944	1,712	1,527	1,927	1,374	812	732
October 1937	1,051	868	1,391	1,188	1,750	1,190	755	680
July "	1,109	916	1,381	1,170	1,700	1,161	787	728
March "	1,006	803	1,389	1,206	1,676	1,250	640	592
January "	951	754	1,459	1,251	1,640	1,123	674	633
January 1936	661	501	1,079	801	1,562	1,012	474	420
January 1935	609	429	1,069	788	1,576	994	423	350

Percentage Increase or Decrease.

March 1939 compared with March 1938	—	8 —	16 +	3 —	1 +	10 +	23 +	7 +	4
January 1939 compared with January 1938	—	5 —	14 +	2 —	9 +	8 +	17 +	18 +	16
October 1938 compared with October 1937	+	3 +	3 +	16 +	19 +	10 +	27 +	30 +	24
July 1938 compared with July 1937	—	8 —	10 —	4 —	11 —	2 +	9 +	20 +	16
Maximum of period Oct. 1938 - March 1939 compared with max. Oct. 1937 - April 1938	—	9 —	14 —	0 —	3 +	9 +	17 +	13 +	24
Minimum of period June - Sept. 1937	—	3 —	8 —	4 —	12 +	1 +	9 +	37 +	37
January 1938 compared with January 1937	+	24 +	25 +	17 +	22 +	15 +	20 +	20 +	16

Annual Averages.

Absolute Data.

Year 1938	1,106	884	1,601	1,358	1,842	1,346	927	836
" 1937	1,063	862	1,428	1,227	1,703	1,174	711	649
" 1936	757	606	1,105	883	1,490	994	604	557
" 1935	636	479	981	717	1,543	1,008	450	375
" 1934	721	513	1,089	761	1,650	1,113	506	426
" 1933	—	555	—	885	—	1,077	—	645
" 1932	—	682	—	921	—	1,059	—	655
" 1931	—	925	—	1,194	—	1,344	—	591
" 1930	—	1,025	—	1,352	—	1,480	—	781

Index Numbers.

1936 = 100: 1938	153	172	147	178	112	121	183	196
" 1937	147	168	131	161	103	105	141	152
" 1936	105	118	102	116	90	89	119	131
" 1935	88	93	90	94	94	91	89	88
" 1934	100	100	100	100	100	100	100	100
1936 = 100: 1938	—	86	—	100	—	91	—	107
" 1935	—	47	—	53	—	69	—	48
" 1930	—	100	—	100	—	100	—	100

of the former category. On the aggregate, the increase corresponds approximately to the depreciation in the purchasing power of money. Quotations for pigs alone showed at the end of the year a real and heavy increase, but this was almost completely eliminated by the fall in prices, resulting from declining consumption, during the first quarter of 1939.

Prices of the *cinquième quartier* (hides and skins) were fairly well maintained on the whole, and following the fall in the spring there was an appreciable rise up till November.

*Value of the cinquième quartier (hides and skins)
per kilo of net weight of meat on the carcass.*

(From the Bulletin de l'Association Générale des Producteurs de Viande).

	Steers	Cows	Bulls	Calves	Sheep			
					Wooled	Half-wooled	Shorn	
Francs per kilogram.								
January 1939	1.34	1.36	1.14	2.88	2.55	2.16	1.84	
December 1938	1.37	1.38	1.18	2.82	2.52	2.21	1.87	
November 1938	1.43	1.40	1.21	2.86	2.51	2.17	1.84	
August 1938	1.37	1.31	1.11	2.76	2.32	2.04	1.73	
July 1938	1.28	1.28	1.09	2.75	2.34	2.06	1.75	
June 1938	1.29	1.30	1.10	2.77	2.34	2.10	1.65	
May 1938	1.26	1.29	1.08	2.27	2.18	1.80	1.55	
April 1938	1.18	1.13	1.05	2.57	2.14	2.00	1.52	
March 1938	1.23	1.12	1.02	2.58	2.25	2.03	1.51	
February 1938	1.35	1.18	1.11	2.60	2.52	2.25	1.55	
January 1938	1.38	1.20	1.20	2.49	2.51	2.06	1.59	
Average 1938	1.33	1.28	1.11	2.75	2.36	2.07	1.64	
December 1937	1.30	1.16	1.10	2.31	2.30	2.00	1.50	
November 1937	1.47	1.30	1.20	2.41	2.61	2.13	1.61	
October 1937	1.60	1.37	1.31	2.51	2.51	2.05	1.60	
September 1937	1.56	1.34	1.25	2.57	2.47	2.05	1.60	
July 1937	1.35	1.19	1.12	2.33	2.10	1.79	1.41	
April 1937	1.56	1.32	1.20	2.61	2.67	2.19	1.69	
January 1937	1.16	0.09	0.90	2.25	2.40	1.95	1.51	
Average 1937	1.40	1.20	1.12	2.40	2.43	2.02	1.56	

In addition, it should be noted that, although the prices of certain feeding stuffs for livestock—cereals and milling offals—have declined, those of straw, fodder and cakes have increased in some cases to a very large extent. The rise was at least proportional in the aggregate to the rise in prices of live weight of meat.

Prices of certain Cattle Feeds.

	At end of January 1939	At end of October 1938 Francs	At end of January 1938
<i>Cereals:</i>			
Oats (Paris per 100 kg.)	97 to 105	97 to 105	123
Milling oats (do.)	110 to 120	120 to 123	145 to 150
Maize (Paris spot, per 100 kg.)	125	137	125
Rice (do.)	155	176	—
<i>Bran and offals (Paris per 100 kg.):</i>			
Bran	88 to 92	77 to 80	92 to 96
Third flour	68 to 72	73 to 77	98 to 100
Offals	85 to 135	85 to 135	105 to 140
<i>Straw and Fodder (Paris per 100 bundles of 5 kg. delivered):</i>			
Wheat straw	200 to 240	185 to 225	170 to 210
Hay	390 to 460	365 to 445	205 to 285
Lucerne	370 to 450	375 to 405	205 to 285
<i>Cakes (per 100 kg.):</i>			
Groundnuts (Marseilles)	99 to 108	102.75	95.25
Copra (north)	135	138	125
Flax (do.)	164 to 167	154 to 158	139 to 142

The general livestock situation at the beginning of 1939. — Except for horses and goats, for which detailed statistics are not available, a decrease may be forecast in the other three categories—cattle, sheep and pigs, owing to the fall in the number of full-grown females and young animals. This is particularly noticeable in the case of cattle, for which the ravages of foot-and-mouth-disease, the poor feeding conditions and the severe cold of the winter must also be taken into account. Moreover, the demand for meat on the market has remained fairly restricted on the whole during the first quarter of the year, particularly in the case of full-grown cattle and pigs.

The cattle breeding situation at the beginning of 1939 seemed rather unsatisfactory and that of pig breeding was also depressed, following the remarkable developments of the last few years. Sheep breeding seems to be in a better position but the maintenance of this improvement depends partly on the trend of the consumption of mutton and partly on the size of imports from North Africa.

Livestock in Canada.

The following table shows the number of livestock on farms in Canada on December 1, 1938, compared with the corresponding figures for December 1, 1937

	Cattle	Sheep	Pigs under 6 months	Pigs over 6 months	Hen and chickens
December 1, 1938	8,091,100	2,671,600	2,340,500	1,228,100	40,752,700
December 1, 1937	8,079,900	2,673,800	2,296,000	1,384,400	39,564,000

The numbers of cattle on December 1, 1938 were 0.1 per cent. above those at December, 1 1937. This slight increase indicates that the cycle in cattle numbers has turned upwards and this trend is expected to continue for the next few years. A further indication of the upward trend is the increase of 1.1 per cent. in the numbers of cows expected to calve this spring.

Sheep numbers were 0.1 per cent. less than at December 1, 1937 and there is a decline of 3.6 per cent. in the number of ewes expected to lamb this spring.

The number of pigs was lower by 3.0 per cent. Pig numbers have been declining since 1936 but an increase in December over June, 1938, indicates a reversal of this trend. Better feed prospects will result in an increase in production. A rise of 14.9 per cent. was reported in the number of sows expected to farrow this spring compared with last spring.

The number of hens and chickens on farms on December 1, 1938 was 3.0 per cent. over the figure for December 1, 1937.

The Early Spring Lamb Crop in the United-States.

An early spring lamb crop slightly smaller than the early large crop of last year is indicated by reports received by the Bureau of Agricultural Economics. The numbers of early lambs for slaughter before July 1, however, will be materially smaller than last year because of the very poor condition of the lambs in California and Texas where a large proportion of the early crop will not reach slaughter weights and condition by that date.

Weather and feed conditions in a number of the important early lambing States have been much less favourable up to March 1 than last year, and prospects for feed in some of these States during the next two months are not promising. Growing conditions last year were generally favourable throughout the season in all of the early lambing States.

In California, the most important source of early lambs, the present and prospective feed situation is very poor in most of the early lambing areas, and it now seems fairly certain that a large proportion of the early lambs will have to be sold as feeders. In Texas, which last year ranked second in the number of early lambs marketed before July 1, weather and feed conditions have been very unfavourable since the first of the year. Losses of early lambs have been heavy and most of the lambs have not made normal growth.

Conditions have been much more favourable in the other early lambing States. In the North Pacific States and Idaho, weather has been fairly favourable for shed lambing and feed supplies have been abundant and cheap. In the South-eastern states the proportion of ewes lambed to March 1 was below last year and hardly up to average, and in Tennessee and Kentucky the shortage of winter grain pasture has handicapped somewhat the growth of the lambs.

The situation as of early March indicated that the slaughter of sheep and lambs during the 3 months from April through June this year will be considerably smaller than the large slaughter during these months last year. Not only will the number of early spring lambs be smaller but the movement of grass fat yearling lambs and wethers from Texas will also be much smaller.

Mohair Production in the United-States.

Mohair production in the United-States in 1938 is estimated to have reached about 16,762,000 lb. against 16,368,000 lb. in 1937. The numbers of goats and kids clipped were 3,876,000 and 3,722,000 respectively. The average clip per goat was 4.3 lb. in 1938 compared with 4.4 lb. in 1937.

Butter Production, Trade and Prices in 1938.

The weather conditions of 1938 were fair to good for dairy production. In Europe, the spring, though mild at first, was cold and very dry on the whole. Pastures and fodder crops were consequently late and milk production was less plentiful. The hay harvest was not satisfactory in all parts but the shortage was generally made up by good second cuts. During the second half of the year, conditions for milk production in Europe were generally favourable. Foot-and-mouth disease abated and its effects on milk production were less noticeable.

Conditions in North America were particularly favourable for milk production, fodder production being favoured by adequate moisture, especially in the United States.

The year was favourable for milk production in Australia and, at least during the summer, in Argentina, but in New Zealand conditions were unfavourable on the whole.

Butter production was consequently adequate on the whole and in some places very plentiful.

The statistics of butter production given in the accompanying table in most cases do not relate to total production. The figures are generally those for creamery production but even such figures are not quite comparable owing to differences in the compilation of returns. Although this table appears for the first time, no explanation of the differences in the material can be given. The notes accompanying the table are sufficient to give a general outline. Speaking generally, statistics of creamery production are more accurate than those of farm production though there are cases in which returns on farm butter for certain countries are more exact than the creamery returns of certain other countries. Data for 1938 are incomplete and partly provisional.

The main producer is the United States. Production in this country has shown relatively slight variations during the years considered though the difference between 1937 and the record year 1936 is greater than the total production of Belgium or Sweden. Germany, the other large producer, has recorded a substantial rise in production representing a quarter of its 1931 production. There has occurred not only a general increase in production but also a shift in the relative importance of production sources. On the one hand, creamery production has doubled and, on the other, farm production has been halved in five years. This has undoubtedly resulted in an improvement in quality. Production in Germany in 1938, however, did not reach the 1937 level.

Production of butter.

(1,000 lb.).

COUNTRIES	1938 1937-38	1937 1936-37	1936 1935-36	1935 1934-35	1934 1933-34	1933 1932-33	1932 1931-32	1931 1930-31
Albania	1,646	—	2,866	3,086	2,866	—	—	—
Germany { a)	905,662	919,771	845,696	687,845	621,485	558,653	494,939	463,854
{ b)	212,747	229,502	248,021	308,648	374,787	429,903	429,903	429,903
Total	1,118,409	1,149,273	1,093,717	996,493	996,272	988,556	924,842	893,757
Austria	—	(x) 49,604	(x) 49,604	(x) 49,604	(x) 48,502	—	—	—
Belgium	—	138,892	143,300	136,687	148,592	153,883	142,419	136,246
Bulgaria	—	1,543	1,323	1,323	882	—	—	—
Denmark	—	404,329	396,613	381,621	402,565	407,857	416,234	425,494
Spain	—	—	—	—	—	15,653	—	—
Estonia a)	—	35,054	30,424	29,322	27,778	—	—	—
Finland a)	—	65,478	61,289	52,691	53,793	52,470	57,100	61,509
France	—	458,122	—	473,995	—	—	—	—
Greece c)	—	13,228	13,228	12,566	13,448	13,669	7,937	6,393
Hungary a)	—	24,912	22,046	18,078	20,724	18,078	13,669	12,787
Ireland	—	137,348	142,199	181,221	—	—	—	—
Italy a)	—	85,099	—	—	—	—	—	—
Latvia a) d)	—	47,840	42,329	39,904	36,376	36,597	44,313	44,093
Lithuania f)	42,770	37,479	34,833	29,101	23,590	21,826	22,708	17,858
Luxemburg { f)	—	5,512	5,512	5,512	5,512	—	—	—
{ g)	—	3,086	1,543	1,323	661	—	—	—
Total	—	8,598	7,275	6,835	6,173	—	—	—
Norway	32,408	26,676	25,133	20,503	20,283	19,401	17,417	13,228
Netherlands { d)	208,999	208,117	207,456	198,637	181,662	176,150	175,929	175,048
{ e)	13,669	13,889	15,873	13,448	17,858	18,078	11,905	11,905
Total	222,668	222,006	223,329	212,085	199,520	194,228	187,834	186,953
United Kingdom:	—	—	(2) 44,093	—	—	—	—	72,973
England and Wales . .	—	—	4,850	—	—	—	—	—
Scotland	—	—	146,608	138,230	136,026	121,255	113,318	118,830
Sweden a)	—	—	59,525	62,832	63,934	56,218	50,486	35,274
Switzerland	67,241	57,320	—	—	—	—	—	—
Czecho-Slovakia a)	—	—	30,424	25,133	25,754	25,794	—	—
Canada { h)	266,981	246,478	250,887	240,966	234,793	218,479	214,070	225,975
{ b)	—	113,098	113,979	114,200	110,011	106,484	106,925	104,720
Total	—	359,576	364,866	355,166	344,804	324,963	320,995	330,595
United States { a) f)	1,775,389	1,614,230	1,629,442	1,632,308	1,694,699	1,762,602	1,694,038	1,667,582
{ k)	—	—	2,425	1,984	1,543	1,102	882	1,230
Total	—	—	1,631,867	1,634,292	1,696,242	1,763,704	1,694,920	1,668,812
Guatemala	—	—	882	1,323	1,323	—	—	(3) 220
Argentina	—	68,123	70,328	61,509	64,596	71,871	81,351	80,249
Brazil	—	—	36,817	39,022	35,935	—	—	—
Chile	—	—	8,819	—	—	—	—	(3) 7,716
Uruguay	—	441	—	—	—	1,543	1,543	1,323
Japan	—	—	5,512	5,953	5,512	4,630	3,968	4,630
Syria and Lebanon	—	15,653	7,716	—	—	4,409	8,157	7,716
Algeria	—	—	—	—	—	—	—	(3) 4,630
Union of South Africa { a)	—	—	32,188	26,456	—	—	—	(4) 18,298
{ b)	—	12,925	14,330	14,330	—	—	—	(4) 11,244
Total	—	—	46,518	40,786	—	—	—	29,542
Australia { a)	—	—	410,723	446,879	428,139	397,936	370,157	331,797
{ b)	—	—	22,928	22,928	22,708	21,826	20,503	18,519
Total	—	—	433,651	469,807	450,847	419,762	390,660	350,316
New Zealand a)	301,152	392,865	372,142	347,891	356,930	327,828	273,154	258,383
b)	5,512	5,071	4,850	5,732	5,732	5,291	4,409	3,968
Total	306,664	397,936	376,992	353,623	362,662	333,119	277,563	262,351

(a) In creameries. — (b) In farms. — (c) Cow, buffalo, ewe and goat milk. — (d) State controlled. —
 (e) Uncontrolled. — (f) In cooperative dairies. — (g) In private dairies and homes. — (i) In all factories. —
 (h) Including whey butter. — (k) Processed butter.
 (1) Estimate. — (2) Year ending June 4. — (3) 1930. — (4) 1929-30. — (5) Estimated by the I. I. A.

At a fair distance behind the two countries mentioned there follows a group of medium producers, the chief which, in order of importance are, according to the latest figures, France, Australia, Denmark, New Zealand, Canada and the Netherlands. The order would probably be different if the returns of all countries were compiled on the same basis.

One aspect not revealed in the table is the composition of the milk production used for butter-making in Greece. Of the total 1937 butter production of 13,300,000 lb., 2,600,000 lb. was made from cows' milk, 1,300,000 lb. from buffaloes' milk, 4,000,000 lb. from ewes' milk and 5,300,000 lb. from goats' milk. The relative importance of the different kinds has changed only slightly in recent years.

Half the quantities indicated for Bulgaria represent whey butter.

For 1938 Lithuania, in addition to figures for the production of co-operative creameries given above, has compiled figures for private creameries for the first time. Production from these was 431,900 lb. making a total of about 43,300,000 lb.

The aggregate production figure given for of the countries included in the table was about 6,400 million lb. in 1937, 6,220 million lb. in 1936, and 5,560 million lb. in 1931. As we have indicated above, these figures do not represent the total production of the countries enumerated.

The butter exports of Denmark, New Zealand and Australia, the three principal exporting countries, show substantial changes in relative importance from

Exports of Butter from the Principal Exporting Countries

(thousand pounds)

COUNTRIES	1938	1937	1936	1935	1934	1933	1932	1931
Denmark	348,433	337,304	322,328	305,024	330,311	332,269	347,886	378,429
New Zealand	293,233	333,325	313,174	312,445	292,823	295,143	244,780	222,718
Australia	229,407	182,916	185,672	256,769	246,782	211,532	229,059	191,016
Netherlands	112,141	118,629	132,686	103,146	81,320	62,552	44,924	72,660
Sweden	62,953	51,886	42,126	44,670	51,152	37,759	29,866	43,045
Latvia	51,460	42,353	38,118	37,073	34,615	34,494	41,002	41,313
Ireland	42,278	42,552	58,032	59,470	56,886	45,232	36,932	42,307
Lithuania	38,387	33,197	32,252	26,795	21,321	21,120	21,883	19,191
Finland	37,763	30,733	30,836	22,582	24,467	26,202	32,020	38,367
Estonia	32,479	29,057	24,152	23,894	22,306	20,336	27,626	31,844
Poland	29,086	17,877	24,046	12,533	9,782	3,547	2,707	27,470
Argentina	16,156	19,361	22,639	14,950	18,347	30,664	55,916	51,167
Hungary	7,760	13,122	10,401	5,518	8,790	8,038	4,495	4,065
France	6,442	6,629	12,677	11,603	7,297	6,829	7,921	11,046
India: by sea	5,463	4,908	3,111	3,023	3,027	2,943	2,798	3,691
Canada	3,821	4,096	5,130	7,696	428	4,437	3,506	10,681
Union of South Africa . .	3,536	7,205	9,308	8,874	2,485	2,482	4,308	4,215
Austria	2,606	7,637	7,802	5,688	7,053	2,606	1,565	2,862
U. S. S. R.	(1) 351	32,236	51,097	64,148	83,562	82,023	68,198	68,024
WORLD TOTAL (2) . . .	...	1,358,045	1,362,561	1,368,445	1,336,160	1,263,597	1,268,941	1,333,063

(1) First nine months. — (2) From the International Yearbook of Agricultural Statistics.

those of the previous year. In the first place, there has been an increase in the gap between the exports of Denmark and those of New Zealand after the latter had wiped out the difference which existed in 1930 between the exports of the two countries, an expansion in the one country coinciding with a contraction in the other. New Zealand's exports in 1937 are the highest hitherto recorded. Denmark, on the other hand, succeeded in increasing her exports at the same rate as in other years following the 1935 minimum and consolidating her position on both the British and German markets. The largest increase over the previous year occurred in Australia whose exports have fluctuated widely in the period under review usually from one year to another. In earlier years the exports of this country, at about 8,800,000 lb., were only half those of the years indicated in the table. Increases being the rule in other exporting countries, it is likely that total exports in 1938 were more than 4,400,000 lb. larger than those of 1937.

There has been a corresponding increase in the principal importing countries, namely, the United Kingdom and Germany. The increase over 1937 is about the same in both countries but is proportionately larger in Germany. Canada's imports were exceptionally large although butter production was larger than in previous years. In the United States, on the other hand, increased domestic production was accompanied by lower imports.

Imports of Butter into the Principal Importing Countries.

(thousand pounds).

COUNTRIES	1938	1937	1936	1935	1934	1933	1932	1931
United Kingdom (1) . . .	1,056,102	1,041,988	1,082,963	1,082,963	1,074,768	979,550	902,601	863,362
Germany	203,465	191,439	166,245	156,529	136,165	130,391	153,264	220,950
Netherlands Indies	9,546	10,514	12,745	14,037	14,114	13,752	12,463	12,359
India	6,874	6,598	1,532	1,345	1,166	908	977	1,162
Canada	5,232	66	119	148	2,873	1,378	238	2,822
Palestine	4,493	5,340	5,494	5,053	3,909	1,927	1,087	754
British Malaya	4,691	4,431	4,103	3,759	3,404	3,106	3,274	4,244
Algeria	4,332	4,114	4,394	4,766	4,791	4,105	3,940	4,634
Belg.-Luxemburg E. U. . .	2,540	4,969	8,142	13,305	20,693	27,408	46,928	41,562
Czecho-Slovakia	2,266	1,676	496	2,928	2,227	1,495	2,703	4,107
United States	1,623	11,111	9,872	22,675	1,252	553	434	1,034
France	1,340	1,495	4,251	1,510	9,603	20,307	26,140	41,562
Italy	463	5,115	939	930	3,311	2,361	3,818	6,188
Switzerland	340	5,624	3,223	302	653	1,146	8,153	23,358
WORLD TOTAL (2) . . .	...	1,349,487	1,365,091	1,358,222	1,343,660	1,250,614	1,259,992	1,328,164

(1) Re-exports have been deducted. — (2) From the International Yearbook of Agricultural Statistics.

The imports of the United Kingdom are given in a separate table showing their countries of origin. The preceding table gives retained imports but this special table shows gross imports less re-exports and exports of home-produced

butter and the resultant net imports. The figures of retained imports given in the general table are not repeated in the special table.

Imports of Butter into the United Kingdom by countries of origin.

(Thousand lb.).

COUNTRIES OF ORIGIN	1938	1937	1936	1935	1934	1933	1932	1931
New Zealand	289,245	330,494	312,684	295,400	299,801	281,323	239,711	215,668
Denmark	264,913	252,935	243,219	244,871	278,411	282,142	289,370	276,200
Australia	201,362	167,018	189,749	236,702	235,577	189,462	201,092	174,491
Netherlands	79,757	80,257	83,475	51,947	33,727	16,326	5,263	10,765
Latvia	38,070	24,291	21,996	21,541	17,445	16,365	12,606	4,427
Ireland	36,579	35,838	52,446	54,708	52,459	42,410	35,242	42,675
U. S. S. R.	—	30,617	46,150	56,358	55,045	63,024	36,163	45,289
Other countries	155,023	133,324	141,240	114,566	113,414	98,093	117,360	133,210
TOTAL . . .	1,064,949	1,054,774	1,090,959	1,076,093	1,085,879	989,145	936,807	902,725
Re-exports	8,847	12,787	7,996	14,271	11,114	9,597	34,209	39,361
United Kingdom exports .	1,354	1,409	1,232	1,398	1,477	1,327	1,239	869
NET IMPORTS . . .	1,054,748	1,040,578	1,081,731	1,060,424	1,073,288	978,221	901,359	862,495

The United Kingdom's main supplier, New Zealand, recorded a reduction almost equal to the total reduction in her exports, the United Kingdom being practically her only market. With the exception of the U. S. S. R., whose exports to Great Britain, like those to Germany since 1937, have ceased completely, other important suppliers succeeded in exporting the same quantities as in 1937 and in many cases even larger quantities. Denmark has almost caught up with New Zealand on the British Market. The price of Danish butter did not increase to the same extent as that of other butters. The price advantage enjoyed by Danish butter in 1934 has been considerably reduced also as compared with the previous year. Consequently, the other suppliers were able to secure a relatively better return by the increase in their sales on the British market. One development worthy of note is the rapid growth in Latvia's exports.

Import of Butter into Germany by countries of origin.

(Thousand lb.).

COUNTRIES OF ORIGIN	1938	1937	1936	1935	1934	1933	1932	1931
Denmark	80,537	75,559	73,502	56,291	42,933	36,678	29,196	67,541
Sweden	27,097	27,463	22,926	21,246	12,584	10,836	8,726	14,917
Netherlands	27,620	26,792	21,581	23,647	28,579	25,441	19,632	36,041
Other countries	68,211	61,625	48,236	55,345	74,115	57,436	95,710	102,451
TOTAL . . .	203,465	191,439	166,245	156,529	158,211	130,391	153,264	220,950

Denmark and several of the minor suppliers of Germany participated in the increase in German imports while the medium suppliers, namely Sweden and the Netherlands, exported about the same quantities as the previous year.

Prices of Butter in Gold Francs per Quintal, yearly averages.

DESCRIPTION	1938	1937	1936	1935	1934	1933	1932	1931
Köbenhavn: Danish	153.83	151.84	140.86	129.70	111.34	131.90	173.71	271.67
Leeuwarden: Dutch	135.22	130.90	112.47	101.80	92.48	125.37	196.37	279.47
Germany: Butter with quality mark	324.70	321.10	321.33	(1)321.38	(1)314.83	(1)277.77	(1)285.57	(1)322.38
London:								
Danish	191.35	189.35	178.59	167.62	150.88	174.82	219.91	308.28
Argentine	148.98	* 139.78	* 145.51	* 123.10	106.12	131.63	185.69	273.00
Australian, salted	* 169.20	163.38	149.77	133.27	107.41	134.63	188.97	270.51
New Zealand, salted	172.59	164.51	150.92	135.38	111.11	136.44	196.45	278.17

(1) Hamburg: Schleswig-Holstein.

* Not quoted during part of the period.

International comparisons of butter prices, which are expressed here in gold francs, must be made with reserve in view of the differences in real price levels from country to country. The quotations without exception show increases over the previous year and a continuation of the rise which began in 1934. In fact, the rise became more general and was extended to Germany. With the exception of this country, however, prices are still considerably below the levels which ruled before the serious decline, as is shown by the quotations for 1931. The series also shows that the differences between various prices have increased from 1931 to 1934. During the decline, these differences were apparent not only as between one country and another but also in quotations for butters of various provenance on the London market. Particularly noteworthy is the privileged position held by Danish butter. Subsequently, those prices, which were exceptionally low in 1934, showed a marked rise, whereas prices of other butters did not increase to the same extent. Thus, the gap between the various quotations is once again diminishing.

Prices of Butter in Gold Francs per Quintal, monthly averages

DESCRIPTION	Dec. 1938	Nov. 1938	Oct. 1938	Sept. 1938	Aug. 1938	July 1938	June 1938	May 1938	April 1938	March 1938	Feb. 1938	Jan. 1938
Köbenhavn: Danish	166	159	150	160	154	148	145	155	149	144	154	160
Leeuwarden: Dutch	138	126	124	129	127	132	136	150	148	138	139	136
Germany: Butter with National mark	338	338	330	321	321	321	321	321	321	321	321	321
London:												
Danish	203	196	187	197	197	185	185	194	185	187	192	199
Argentine	142	135	n. q.	158	n. q.	n. q.	n. q.	n. q.	n. q.	n. q.	n. q.	160
Australian, salted	150	114	159	167	172	178	178	189	182	175	168	164
New Zealand, salted	157	153	164	174	178	180	182	193	183	176	169	166

Monthly prices are mainly a reflection of seasonal fluctuations in production. London prices for Australian and New Zealand butters are highest in the second quarter of the year.

W. SCHUBRING.

Current information on Livestock and Derivatives.

France: Foot-and-mouth disease is abating noticeably and seems to be disappearing completely but farmers, especially those in the *départements* affected by frost, are experiencing great difficulties in maintaining their animals in good condition owing to acute feeding problems. In many cases they have been obliged to dispose of part of their stock earlier than usual.

Ireland: Milk production was adversely affected in March by the severe weather and somewhat limited supplies of fodder and roots, but nevertheless was up to the level of the corresponding period of 1938.

Latvia: Milk production increased 5 to 10 per cent. over the previous month. The principal cause of this increase was the rise in the number of milch cows.

Argentina: The condition of livestock in March was good throughout the country. The second wool clip in Patagonia was poor.

United States: Milk production per cow in the United States on March 1 was well above that of a year earlier and nearly 5 per cent. above the ten-year average for March 1. Although production per cow showed somewhat less than the usual seasonal rise during February, abundant feed supplies on farms and liberal feeding of grain and concentrates to milk cows apparently offset much of the unfavourable effects of subnormal temperature and heavy snows over a large portion of the country late in February.

Pastures seem to have begun the year in normal condition. Condition on April 1 was 79 per cent. of normal, the second highest for that date since 1930 but lower than on any April 1 in the 1924-29 period, prior to recent droughts. Reports from the Southern States showed pastures furnishing less feed than a year ago but condition was rather generally above the low 1928-37 average except in California, Texas and Florida. Reports from the Northern States indicated prospects for pastures mostly about average or better, but in Kansas, Nebraska and the Dakotas the condition was still markedly lower than before recent drought years.

Milk production on April 1, after a much sharper than usual seasonal increase during March, was the highest on record for that date from the standpoint of total milk production, production per cow and production per unit of population. Abundant supplies of hay and grain encouraged farmers to feed their milk cows liberally in the late months of the winter feeding period, and in the southern half of the country, pastures, although later than a year ago, are furnishing some feed for milk cows.

Algeria: The abnormal cold and excessive rain of March checked the improvement in the condition of livestock. In Alger and Oran sheep remained thin owing to the retardation of growth and the flooding of many pastures by rain. In Costantine the situation, however, was satisfactory both in the littoral and the sub-littoral (Tell.). There was also a tendency to improvement in the tablelands and the south.

Union of South Africa: Very heavy rains fell in the summer rainfall areas of the Union in February, and good rains also fell even in most parts of the winter rainfall areas. Consequently, grazing improved very considerably throughout the Union, and prospects for livestock during the winter were very favourable. Sheep were adversely affected in some parts of the east by excessive rain and flooding.

Current information on Sericulture.

Indochina: In Annam, the second sprouting of mulberries began vigorously in February and enabled the minor rearings to be begun. The condition of worms was poor owing to changes in temperature during the month.

TRADE

COUNTRIES	FEBRUARY				SEVEN MONTHS (August 1-February 28)				TWELVE MONTHS (August 1-July 31)	
	EXPORTS		IMPORTS		EXPORTS		IMPORTS		EXPORTS	IMPORTS
	1939	1938	1939	1938	1938-39	1937-38	1938-39	1937-38	1937-38	1937-38
Wheat. — Thousand centals (1 cental = 100 lb.).										
<i>Exporting Countries:</i>										
Bulgaria	0	189	0	0	0	3,048	0	0	4,666	0
Hungary	1,699	461	0	0	10,331	2,945	0	0	4,053	0
Lithuania	80	0	0	0	481	0	0	0	41	0
Poland-Danzig	43	0	0	45	425	1	65	109	36	241
Romania	1,947	1,364	0	0	16,892	14,864	0	0	19,305	0
Yugoslavia	200	0	0	0	2,749	2,338	0	0	2,352	0
U. S. S. R. . . . .	...	...	...	...	(5) 10,209	(5) 5,313	(5) 0	(5) 0	27,335	2,837
Canada	3,448	1,703	7	148	56,864	32,229	638	994	46,029	3,446
United States	5,269	5,253	611	15	26,720	29,119	3,257	1,206	55,528	1,323
Argentina	4,456	6,664	—	—	22,332	22,181	—	—	40,448	—
Chile . . . . .	...	...	...	...	(3) 0	(3) 0	(3) 3	(3) 0	0	1
Uruguay . . . . .	...	...	...	...	(3) 279	(3) 0	(3) 2	(3) 283	496	283
India: by sea	6	272	688	257	1,940	4,818	3,035	314	9,569	481
„ : by land . . . . .	...	...	...	...	(2) 209	(2) 139	(2) 71	(2) 118	433	196
Iraq . . . . .	...	...	...	...	(2) 426	(2) 440	(2) 0	(2) 0	1,076	1
Iran . . . . .	...	...	...	...	(2) 0	(2) 489	(2) 0	(2) 2	489	2
Manchukuo . . . . .	...	...	...	...	(2) 0	(2) 145	(2) 4	(2) 0	413	4
Syria and Lebanon	121	0	0	0	378	3	193	185	36	480
Turkey	91	73	—	—	1,025	664	—	—	2,115	—
Algeria	105	306	71	0	756	3,404	700	173	4,184	700
Egypt . . . . .	...	...	...	...	(1) 1	(1) 434	(1) 0	(1) 0	436	18
French Morocco . . . . .	...	...	...	...	(2) 1,468	(2) 700	(2) 0	(2) 279	1,731	289
Tunisia . . . . .	...	...	...	...	(1) 571	(1) 1,513	(1) 7	(1) 38	2,764	40
Australia	4,601	6,212	0	0	19,968	22,536	0	0	56,017	0
<i>Importing Countries:</i>										
Germany (6)	0	0	1,019	2,872	0	0	16,765	13,139	0	21,123
Austria (6)	0	0	260	418	3	6	2,478	2,021	9	4,081
Belgo-Luxemb. E. U.	54	167	1,589	1,276	1,794	1,556	13,484	15,803	2,630	24,945
Denmark	1	10	108	170	50	159	1,689	1,969	263	3,818
Spain	—	—	—	—	—	—	—	—	—	—
Estonia	0	0	0	0	0	10	11	24	10	103
Finland	0	0	22	59	0	0	487	622	0	987
France	736	0	877	823	2,992	286	5,878	6,333	286	10,899
Greece . . . . .	...	...	...	...	(1) 0	(1) 0	(1) 3,076	(1) 3,946	0	10,920
Ireland	0	0	523	871	0	0	5,439	4,939	0	7,705
Italy	0	1	684	407	29	39	3,455	2,393	40	5,723
Latvia	0	0	0	0	0	0	295	273	0	592
Norway	0	0	235	123	0	0	2,163	1,933	0	3,246
Netherlands	5	0	846	952	20	15	8,815	7,508	16	12,667
Portugal	0	0	7	22	0	0	1,199	73	0	1,374
United Kingdom	33	69	10,958	8,018	905	736	69,336	60,427	1,286	108,330
Sweden	107	292	29	44	138	1,335	774	644	1,425	996
Switzerland	0	0	758	781	0	2	6,580	5,354	3	8,972
Czecho-Slovakia	56	163	0	238	377	747	391	886	860	2,793
Brazil . . . . .	—	—	...	...	—	—	(3) 7,519	(3) 6,322	—	20,872
Colombia . . . . .	—	—	...	...	—	—	(4) 107	(4) 86	—	319
Peru . . . . .	...	...	...	...	(2) 0	(2) 0	(2) 1,141	(2) 1,457	0	3,003
Burma	0	0	2	15	3	2	51	75	6	127
Ceylon	—	—	10	7	—	—	43	56	—	79
China	1	0	552	0	147	0	552	0	2	0
Chosen . . . . .	...	...	...	...	(1) 0	(1) 1	(1) 71	(1) 0	5	22
Taiwan . . . . .	—	—	...	...	—	—	(3) 0	(3) 0	—	0
Indochina . . . . .	...	...	...	...	(1) 0	(1) 0	(1) 2	(1) 0	0	1
Japan . . . . .	—	—	...	...	—	—	(2) 233	(2) 1,575	—	2,802
British Malaya . . . . .	...	...	...	...	(1) 1	(1) 1	(1) 7	(1) 6	2	11
Palestine . . . . .	...	...	...	...	(1) 0	(1) 17	(1) 468	(1) 177	17	573
Union of South Africa . . . . .	...	...	...	...	(2) 0	(2) 4	(2) 1,025	(2) 6	4	555
New Zealand . . . . .	...	...	...	...	(1) 0	(1) 0	(1) 427	(1) 1,088	0	2,717
Total	23,059	23,199	19,856	17,561	180,483	152,239	161,936	142,836	286,416	270,697

(1) Up to January 31. — (2) Up to December 31. — (3) Up to November 30. — (4) Up to October 31. — (5) Up to September 30. — (6) From January 1, 1938 not including trade between Germany and Austria.

COUNTRIES	FEBRUARY				SEVEN MONTHS (August 1-February 28)				TWELVE MONTHS (August 1-July 31)	
	EXPORTS		IMPORTS		EXPORTS		IMPORTS		EXPORTS	IMPORTS
	1939	1938	1939	1938	1938-39	1937-38	1938-39	1937-38	1937-38	1937-38
Exporting Countries:										
Wheat Flour. — Thousand cents (1 cental = 100 lb.).										
Bulgaria	0	2	0	0	2	40	0	0	46	0
Spain	—	—	—	—	—	—	—	—	—	—
France	476	87	82	71	1,736	988	524	548	1,605	963
Hungary	50	53	0	0	497	692	0	0	958	0
Italy	136	183	0	6	1,035	1,238	257	81	2,308	160
Latvia	0	9	0	0	0	9	0	0	15	0
Lithuania	9	0	0	0	25	0	0	0	5	0
Poland - Danzig	71	60	0	0	555	140	0	0	322	0
Romania	3	0	0	0	5	1	0	0	1	0
Czecho-Slovakia	171	44	0	1	456	536	3	4	752	5
Yugoslavia	1	17	0	0	23	147	0	0	306	0
U. S. S. R.	—	—	—	—	(5) 292	(5) 315	(5) 15	(5) 22	949	52
Canada	570	534	11	9	5,190	4,400	91	96	7,077	172
United States	1,320	760	24	8	6,877	5,930	105	142	10,179	183
Argentina	161	129	—	—	1,114	996	—	—	1,768	—
Uruguay	—	—	—	—	(3) 160	(3) 0	(3) 0	(3) 0	225	0
Chosen	—	—	—	—	(1) 300	(1) 83	(1) 0	(1) 0	217	0
India: by sea	67	121	0	0	791	812	2	2	1,450	4
Iraq	—	—	—	—	(2) 75	(2) 61	(2) 0	(2) 0	116	1
Iran	—	—	—	—	(2) 0	(2) 0	(2) 0	(2) 0	0	0
Japan	—	—	—	—	(2) 2,749	(2) 2,623	(2) 0	(2) 11	6,168	22
Algeria	24	58	11	3	280	364	101	26	657	113
French Morocco	—	—	—	—	(2) 0	(2) 0	(2) 0	(2) 0	0	0
Tunisia	—	—	—	—	(1) 192	(1) 165	(1) 52	(1) 58	310	112
Australia	1,074	1,295	0	0	7,614	7,078	0	0	12,976	1
Importing Countries:										
Germany (5)	0	6	216	123	6	22	414	817	84	1,277
Austria (6)	0	0	43	33	2	9	209	214	10	368
Belgo-Luxemb. E. U.	5	7	1	2	46	60	12	30	100	35
Denmark	2	2	37	28	17	17	321	139	29	294
Estonia	0	0	0	0	0	0	0	0	0	0
Finland	0	0	28	47	0	0	337	307	0	574
Greece	—	—	—	—	(1) 0	(1) 0	(1) 18	(1) 11	0	23
Ireland	0	0	10	11	0	0	68	71	0	118
Norway	0	0	19	31	4	2	513	334	3	684
Netherlands	0	22	149	125	3	185	894	857	191	1,472
Portugal	0	0	3	1	0	0	28	25	0	43
United Kingdom	188	155	679	751	1,543	1,123	4,986	5,283	2,049	8,815
Sweden	0	2	0	0	3	12	4	2	18	3
Haiti	—	—	—	—	—	—	(2) 69	(2) 80	—	169
Brazil	—	—	—	—	—	—	(3) 395	(3) 284	—	857
Chile	—	—	—	—	(3) 0	(3) 0	(3) 34	(3) 9	0	44
Colombia	—	—	—	—	(2) 0	(2) 0	(4) 6	(4) 3	—	15
Peru	—	—	—	—	(2) 0	(2) 0	(2) 18	(2) 14	0	38
Burma	0	1	48	45	0	2	405	343	3	633
Ceylon	—	—	21	16	—	—	218	183	—	322
China	34	0	291	288	264	0	2,796	720	0	3,680
Netherlands Indies:										
Java and Madura	—	—	—	—	—	—	(1) 660	(1) 521	—	1,093
Outer Provinces	—	—	—	—	—	—	(1) 383	(1) 353	—	644
Indochina	—	—	6	30	(1) 0	(1) 0	(1) 308	(1) 241	1	434
British Malaya	—	—	—	—	(1) 70	(1) 74	(1) 777	(1) 758	131	1,457
Manchukuo	—	—	—	—	(2) 0	(2) 153	(2) 3,095	(2) 705	202	2,897
Palestine	—	—	—	—	(1) 0	(1) 1	(1) 224	(1) 238	2	436
Syria and Lebanon	11	0	0	12	43	18	39	65	32	105
Egypt	—	—	—	—	(1) 0	(1) 30	(1) 21	(1) 26	32	85
Union of South Africa	—	—	—	—	(2) 1	(2) 4	(2) 4	(2) 4	6	11
New Zealand	—	—	—	—	(1) 0	(1) 0	(1) 0	(1) 0	0	1
Total	4,373	3,547	1,679	1,641	31,970	28,330	18,406	13,627	51,303	28,415

(1) Up to January 31. — (2) Up to December 31. — (3) Up to November 30. — (4) Up to October 31. — (5) Up to September 30. — (6) From January 1, 1938 not including trade between Germany and Austria.

COUNTRIES	FEBRUARY				SEVEN MONTHS (August 1-February 28)				TWELVE MONTHS (August 1-July 31)	
	NET EXPORTS *		NET IMPORTS **		NET EXPORTS *		NET IMPORTS **		NET EX. *	NET IM. **
	1939	1938	1939	1938	1938-39	1937-38	1938-39	1937-38	1937-38	1937-38
Total Wheat and Flour †. — Thousand centals (1 cental = 100 lb.).										
Germany (6)	—	—	1,306	3,028	—	—	17,309	14,199	—	22,714
Austria (6)	—	—	316	460	—	—	2,752	2,288	—	4,549
Belgo-Luxemb. E. U. .	—	—	1,530	1,103	—	—	11,644	14,208	—	22,228
Bulgaria	0	192	—	—	3	3,101	—	—	4,727	—
Denmark	—	—	153	195	—	—	2,041	1,972	—	3,910
Spain	—	—	—	—	—	—	11	14	—	93
Estonia	—	—	0	0	—	—	936	1,031	—	1,753
Finland	—	—	60	122	—	—	1,270	5,460	—	9,756
France	385	—	—	801	—	—	3,100	3,962	—	10,951
Greece	—	—	—	—	—	—	(1)	(1)	—	—
Hungary	1,765	531	—	—	10,993	3,868	—	—	5,331	—
Ireland	—	—	536	886	—	—	5,530	5,034	—	7,861
Italy	—	—	503	170	—	—	2,388	812	—	2,833
Latvia	—	12	0	—	—	—	295	261	—	571
Lithuania	91	0	—	—	515	0	—	—	48	—
Norway	—	—	260	163	—	—	2,841	2,377	—	4,155
Netherlands	—	—	1,041	1,089	—	—	9,984	8,389	—	14,368
Poland-Danzig	138	34	—	—	1,100	78	—	—	225	—
Portugal	—	—	10	23	—	—	1,236	106	—	1,431
Romania	1,951	1,364	—	—	16,899	14,865	—	—	19,307	—
United Kingdom . . .	—	—	11,580	8,743	—	—	73,022	65,238	—	116,072
Sweden	78	250	—	—	—	705	638	—	449	—
Switzerland (7) . . .	—	—	758	781	—	—	6,580	5,352	—	8,969
Czecho-Slovakia . . .	285	—	—	18	590	571	—	—	—	936
Yugoslavia	201	22	—	—	2,779	2,534	—	—	2,758	—
Totals Europe . . .	4,894	2,405	18,053	17,582	32,879	25,722	141,577	130,703	32,845	233,150
U. S. S. R.	—	—	—	—	(5) 10,579	(5) 5,704	—	—	25,694	—
Canada	4,186	2,255	—	—	63,024	36,974	—	—	51,789	—
United States	6,386	6,240	—	—	32,492	35,631	—	—	67,534	—
Haiti	—	—	—	—	—	—	(2) 91	(2) 107	—	226
Argentina	4,671	6,837	—	—	23,817	23,510	—	—	42,790	—
Brazil	—	—	—	—	—	—	(3) 8,046	(3) 6,702	—	22,015
Chile	—	—	—	—	—	—	(3) 49	(3) 12	—	59
Colombia	—	—	—	—	—	—	(4) 115	(4) 90	—	340
Peru	—	—	—	—	—	—	(2) 1,166	(2) 1,476	—	3,054
Uruguay	—	—	—	—	(3) 491	—	(2) 283	(3) 283	513	—
Burma	—	—	66	73	—	—	588	527	—	961
Ceylon	—	—	38	28	—	—	334	300	—	508
China	—	—	892	384	—	—	3,781	960	—	4,904
Chosen	—	—	—	—	(1) 330	(1) 111	—	—	257	—
Taiwan	—	—	—	—	—	—	(3) 0	(3) 0	—	0
India: by sea	—	176	593	—	—	5,584	42	—	11,017	—
„ : by land	—	—	—	—	(2) 138	(2) 21	—	—	236	—
Netherlands Indies:	—	—	—	—	—	—	—	—	—	—
Java and Madura . . .	—	—	—	—	—	—	(1) 880	(1) 695	—	1,457
Outer Provinces . . .	—	—	—	—	—	—	(1) 510	(1) 471	—	859
Indochina	—	—	—	—	—	—	(1) 405	(1) 281	—	579
Iraq	—	—	—	—	(2) 525	(2) 521	—	—	1,229	—
Iran	—	—	—	—	—	(2) 487	(2) 0	—	487	—
Japan	—	—	—	—	(2) 3,432	(2) 1,907	—	—	5,393	—
British Malaya	—	—	—	—	—	—	(1) 949	(1) 917	—	1,777
Manchukuo	—	—	—	—	—	—	(2) 4,130	(2) 591	—	3,185
Palestine	—	—	—	—	—	—	(1) 767	(1) 475	—	1,135
Syria and Lebanon . .	135	—	—	16	190	—	—	244	—	542
Turkey	91	73	—	—	1,025	664	—	—	2,115	—
Algeria	52	379	—	—	296	3,682	—	—	4,210	—
Egypt	—	—	—	—	—	(1) 438	(1) 28	—	348	—
French Morocco . . .	—	—	—	—	(2) 1,468	(2) 421	—	—	1,442	—
Tunisia	—	—	—	—	(1) 751	(1) 1,618	—	—	2,988	—
Union of South Africa .	—	—	—	—	—	—	(2) 1,029	(2) 2	—	559
Australia	6,032	7,938	—	—	30,120	31,972	—	—	73,318	—
New Zealand	—	—	—	—	—	—	(1) 427	(1) 1,088	—	2,686
Total . . .	26,447	26,303	19,642	18,083	201,557	174,967	164,914	145,924	324,205	277,996

* Excess of exports over imports. — ** Excess of imports over exports.

† Flour reduced to grain on the basis of the coefficient: 1,000 centals of flour = 1,333.333 centals of grain.

(1) Up to January 31. — (2) Up to December 31. — (3) Up to November 30. — (4) Up to October 31. — (5) Up to September 30. — (6) From January 1, 1938 not including trade between Germany and Austria. — (7) Wheat only.

COUNTRIES	FEBRUARY				SEVEN MONTHS (August 1-February 28)				TWELVE MONTHS (August 1-July 31)	
	EXPORTS		IMPORTS		EXPORTS		IMPORTS		EXPORTS	IMPORTS
	1939	1938	1939	1938	1938-39	1937-38	1938-39	1937-38	1937-38	1937-38
Rye. — Thousand centals (1 cental = 100 lb.).										
<i>Exporting Countries:</i>										
Bulgaria	0	39	0	0	0	147	0	0	158	0
Spain	—	—	—	—	—	—	—	—	—	—
Hungary	34	347	0	0	210	832	0	0	1,629	0
Latvia	0	0	0	0	0	0	0	0	0	0
Lithuania	180	84	0	0	1,196	163	1	0	1,084	0
Netherlands	91	179	52	84	940	1,171	498	750	1,617	1,308
Poland-Danzig	689	0	0	2	3,448	47	0	2	228	13
Romania	15	71	0	0	60	3,837	0	0	4,090	0
Yugoslavia	0	4	0	0	0	150	0	0	156	0
U. S. S. R. . . . .	...	...	...	...	(3) 1,428	(3) 846	(3) 0	(3) 0	7,432	0
Canada	0	5	0	6	469	228	0	35	363	35
United States	0	294	0	0	374	2,517	0	0	3,585	0
Argentina	44	1	—	—	237	47	—	—	96	—
Algeria	5	0	0	0	31	11	0	0	15	0
<i>Importing Countries:</i>										
Germany (4)	0	0	149	70	2	0	1,623	1,084	0	1,596
Austria (4)	0	1	7	407	3	11	104	3,082	15	4,131
Belgo-Luxemb. E.U.	0	0	360	68	21	70	4,011	1,087	90	2,462
Denmark	0	0	130	106	1	2	1,308	1,713	12	3,046
Estonia	7	0	0	0	127	1	182	239	102	325
Finland	0	0	9	5	0	0	258	352	0	668
France	0	0	15	0	0	0	27	11	0	17
Greece . . . . .	...	...	...	...	(1) 0	(1) 0	(1) 0	(1) 1	0	1
Italy	0	0	64	3	0	0	508	13	0	319
Norway	0	0	109	185	0	0	1,720	1,394	0	2,617
United Kingdom	0	0	0	17	2	2	80	91	3	125
Sweden	0	0	11	0	0	1	82	11	1	108
Switzerland	0	0	13	18	0	0	271	146	0	295
Czecho-Slovakia	0	0	0	299	0	2	524	1,832	3	4,148
Palestine . . . . .	—	—	...	...	—	—	(1) 83	(1) 67	—	146
French Morocco . . . . .	...	...	...	...	(2) 0	(2) 0	(2) 0	(2) 0	0	0
Total	1,065	1,025	919	1,268	8,549	10,085	11,280	11,910	21,561	21,360

(1) Up to January 31. — (2) Up to December 31. — (3) Up to September 30. — (4) From January 1, 1938 not including trade between Germany and Austria.

COUNTRIES	FEBRUARY				SEVEN MONTHS (August 1-February 28)				TWELVE MONTHS (August 1-July 31)	
	EXPORTS		IMPORTS		EXPORTS		IMPORTS		EXPORTS	IMPORTS
	1939	1938	1939	1938	1938-39	1937-38	1938-39	1937-38	1937-38	1937-38
Barley. — Thousand centals (1 cental = 100 lb.).										
<i>Exporting Countries:</i>										
Bulgaria	0	5	0	0	0	256	0	0	256	0
Denmark	334	317	0	33	2,010	2,898	9	125	3,345	679
Spain	—	—	—	—	—	—	—	—	—	—
Hungary	6	24	0	0	65	130	0	0	170	0
Latvia	36	0	0	0	36	0	0	2	0	3
Lithuania	57	55	0	0	233	62	0	0	273	0
Poland - Danzig	860	495	0	0	4,062	2,743	0	0	4,605	0
Romania	54	249	0	0	2,520	4,028	0	0	5,107	0
Sweden	1	0	0	0	2	1	0	0	1	0
Czecho-Slovakia	197	73	0	0	940	449	0	1	1,009	1
Yugoslavia	0	5	3	2	0	116	20	6	132	11
U. S. S. R. . . . .	...	...	...	...	(4) 4,534	(4) 2,946	(4) 0	(4) 0	6,402	0
Canada	310	388	0	0	5,912	4,631	1	0	7,077	0
United States	345	373	0	0	4,263	5,712	0	446	8,747	506
Argentina	659	1,301	—	—	1,419	3,376	—	—	4,831	—
Chile . . . . .	...	...	—	—	(3) 281	(3) 31	—	—	1,403	—
India: by sea	1	0	11	0	36	308	37	32	476	39
Iraq . . . . .	...	...	...	...	(2) 1,819	(2) 2,356	(2) 0	(2) 1	4,150	1
Iran . . . . .	...	...	...	...	(2) 26	(2) 181	(2) 0	(2) 0	279	0
Manchukuo . . . . .	...	...	—	—	(2) 1	(2) 15	—	—	22	—
Syria and Lebanon	55	18	0	0	669	64	4	26	242	37
Turkey	213	330	—	—	1,839	2,107	—	—	2,846	—
Algeria	16	51	10	67	176	310	111	127	462	198
Egypt . . . . .	...	...	...	...	(1) 62	(1) 76	(1) 11	(1) 0	116	1
French Morocco . . . . .	...	...	...	...	(2) 731	(2) 0	(2) 0	(2) 217	41	628
Union of South Afr. . . . .	...	...	...	...	(2) 0	(2) 0	(2) 0	(2) 0	0	0
Australia	312	404	0	0	720	1,188	0	0	2,568	0
<i>Importing Countries:</i>										
Germany (5)	0	0	565	382	0	0	5,663	3,379	0	7,695
Austria (5)	0	0	102	69	0	1	675	490	2	893
Belgo-Luxemb. E. U.	16	69	842	884	171	420	7,092	7,031	573	9,503
Estonia	0	0	0	10	0	0	4	26	0	94
Finland	0	0	0	0	0	0	0	2	0	2
France	4	2	127	216	31	4	939	1,439	6	1,946
Greece . . . . .	...	...	...	...	(1) 0	(1) 0	(1) 222	(1) 1	0	35
Ireland	0	0	0	0	0	14	242	271	14	384
Italy	2	0	78	45	15	3	432	534	7	981
Norway	0	0	24	32	0	0	223	237	0	281
Netherlands	53	36	341	364	767	614	2,931	3,348	677	5,504
United Kingdom	0	0	1,226	1,438	3	5	14,249	14,923	7	22,235
Switzerland	0	0	282	247	0	0	2,041	2,058	0	3,228
Burma	—	—	1	0	—	—	3	2	—	5
Ceylon	—	—	1	1	—	—	7	4	—	7
Chosen . . . . .	...	...	...	...	(1) 0	(1) 20	(1) 0	(1) 1	23	4
Indochina . . . . .	...	...	...	...	(1) 0	(1) 0	(1) 0	(1) 0	0	0
Japan . . . . .	—	—	...	...	—	—	(2) 0	(2) 25	—	54
Palestine . . . . .	...	...	...	...	(1) 6	(1) 57	(1) 170	(1) 55	58	144
Tunisia . . . . .	...	...	...	...	(1) 3	(1) 625	(1) 126	(1) 9	829	17
New Zealand . . . . .	...	...	...	...	(1) 0	(1) 0	(1) 42	(1) 56	0	288
Total	3,531	4,195	3,613	3,790	33,352	35,747	35,254	34,874	56,756	55,404

(1) Up to January 31. — (2) Up to December 31. — (3) Up to November 30. — (4) Up to September 30. — (5) From January 1, 1938 not including trade between Germany and Austria.

COUNTRIES	FEBRUARY				SEVEN MONTHS (August 1-February 28)				TWELVE MONTHS (August 1-July 31)	
	EXPORTS		IMPORTS		EXPORTS		IMPORTS		EXPORTS	IMPORTS
	1939	1938	1939	1938	1938-39	1937-38	1938-39	1937-38	1937-38	1937-38
Oats. — Thousand centals (1 cental = 100 lb.).										
<i>Exporting Countries:</i>										
Bulgaria	0	0	0	0	0	2	0	0	2	0
Hungary	0	0	0	0	0	0	0	0	0	0
Lithuania	90	0	0	0	491	0	0	0	17	0
Poland-Danzig	123	50	0	0	167	75	0	0	186	0
Romania . . . . .	...	...	...	...	(2) 0	(2) 6	(2) 0	(2) 0	6	0
Czecho-Slovakia . . .	54	117	2	1	552	522	2	2	864	3
Yugoslavia	0	0	0	0	0	114	0	0	114	1
U. S. S. R. . . . .	...	...	...	...	(4) 10	(4) 5	(4) 0	(4) 0	61	0
Canada	154	96	198	380	1,844	965	1,131	2,405	1,624	4,014
United States	23	101	3	1	1,175	2,388	29	3	3,797	3
Argentina	568	1,579	—	—	3,026	6,224	—	—	9,065	—
Chile . . . . .	...	...	...	...	(3) 146	(3) 252	(3) 0	(3) 0	1,177	0
Chosen . . . . .	...	...	...	...	(1) 1	(1) 19	(1) 0	(1) 1	118	2
India: by sea	2	2	—	—	15	13	—	—	22	—
French Morocco . . .	...	...	...	...	(2) 327	(2) 120	(2) 0	(2) 3	440	3
Tunisia . . . . .	...	...	...	...	(1) 81	(1) 218	(1) 0	(1) 0	302	0
Union of South Afr. .	...	...	...	...	(2) 2	(2) 7	(2) 0	(2) 0	11	0
Australia	3	14	0	0	20	62	0	1	86	2
New Zealand . . . .	...	...	...	...	(1) 0	(1) 1	(1) 2	(1) 10	2	14
<i>Importing Countries:</i>										
Germany (5)	0	0	104	152	0	0	1,353	606	0	3,314
Austria (5)	0	0	279	36	0	0	586	232	1	417
Belgo-Luxemb. E. U. .	0	0	54	161	1	2	248	439	2	1,124
Denmark	21	14	0	56	168	179	99	308	223	1,114
Estonia	0	0	0	2	0	0	3	2	0	73
Finland	0	0	0	27	0	0	20	97	0	144
France	2	1	28	23	8	5	167	319	7	493
Greece . . . . .	...	...	...	...	(1) 0	(1) 0	(1) 0	(1) 22	0	22
Ireland	0	0	0	0	3	0	0	0	30	0
Italy	0	0	18	106	5	20	50	303	65	369
Latvia	103	0	0	0	109	0	0	0	0	0
Norway	0	0	1	0	0	0	1	1	0	9
Netherlands	81	42	30	298	265	427	467	887	784	1,524
United Kingdom . . .	10	3	250	141	16	19	1,331	690	28	1,324
Sweden	7	14	0	11	13	27	26	177	38	386
Switzerland	0	0	508	726	0	0	2,230	2,742	0	4,678
Uruguay . . . . .	...	...	...	...	(3) 0	(3) 15	(3) 0	(3) 0	15	0
Ceylon	—	—	1	0	—	—	9	8	—	15
Indochina . . . . .	...	...	...	...	(1) 0	(1) 0	(1) 0	(1) 1	0	2
Japan . . . . .	—	—	...	...	—	—	(2) 0	(2) 0	—	1
Syria and Lebanon . .	0	0	0	0	2	9	2	0	9	1
Algeria	0	0	18	26	11	3	411	300	16	473
Egypt . . . . .	—	—	...	...	—	—	(1) 0	(1) 0	—	0
Total	1,241	2,033	1,494	2,147	8,458	11,699	8,167	9,559	19,112	19,525

(1) Up to January 31. — (2) Up to December 31. — (3) Up to November 30. — (4) Up to September 30. — (5) From January 1, 1938 not including trade between Germany and Austria.

COUNTRIES	FEBRUARY				FOUR MONTHS (November 1-February 28)				TWELVE MONTHS (Nov. 1-Oct. 31)	
	EXPORTS		IMPORTS		EXPORTS		IMPORTS		EXPORTS	IMPORTS
	1939	1938	1939	1938	1938-39	1937-38	1938-39	1937-38	1937-38	1937-38
Maize. — Thousand centals (1 cental = 100 lb.).										
<i>Exporting Countries:</i>										
Bulgaria	0	146	0	0	0	256	0	0	1,394	
Hungary	88	443	0	0	224	2,648	0	0	4,223	226
Romania	1,401	0	0	0	4,891	100	0	0	2,788	
Yugoslavia	27	1,448	0	0	469	5,982	0	0	13,850	0
U. S. S. R.	1,501	9,038	7	22	10,856	19,582	73	229	80,178	37
United States . . . . .	...	...	...	...	(2) 0	(2) 1	...	...	5	...
Haiti . . . . .	...	...	...	...	(2) 69	(2) 54	...	...	264	...
Dominican Republic . . . . .	...	...	...	...	19,303	22,922	...	...	66,057	...
Argentina	3,123	443	...	...	(3) 126	(3) 78	...	...	2,678	...
Brazil . . . . .	...	...	...	...	34	22	...	...	276	...
Burma	5	5	...	...	26	0	...	...	0	...
China	6	0	...	...	1	1	...	...	2	...
India: by sea	0	0	...	...	...	...	...	...	...	...
Netherlands Indies:										
Java and Madura	415	159	...	...	563	209	...	...	1,209	...
Outer Provinces . . . . .	...	...	...	...	(1) 80	(1) 130	...	...	1,022	...
Indochina	222	339	...	...	3,490	4,008	...	...	12,554	...
Iraq . . . . .	...	...	...	...	(2) 0	(2) 2	...	...	20	...
Manchukuo . . . . .	...	...	...	...	(2) 915	(2) 1,159	...	...	5,146	...
Syria and Lebanon	6	4	0	0	25	13	0	0	18	1
Turkey	0	0	0	0	1	1	0	0	23	0
Egypt . . . . .	...	...	...	...	(1) 1	(1) 1	(1) 0	(1) 0	7	114
Madagascar	7	1	0	0	32	13	0	0	1,180	0
French Morocco . . . . .	...	...	...	...	(2) 0	(2) 0	(2) 0	(2) 30	0	479
Union of South Afr. . . . .	...	...	...	...	(1) 1,510	(1) 3,404	(2) 4	(2) 1	6,593	9
<i>Importing Countries:</i>										
Germany (5)	0	0	172	2,355	0	0	3,099	19,610	0	53,440
Austria (5)	0	0	405	505	0	0	2,121	2,245	0	6,746
Belgo-Luxemb. E. U.	12	66	1,065	962	118	163	4,351	6,579	639	14,891
Denmark . . . . .	...	0	523	675	1	4	940	3,943	221	8,368
Spain . . . . .	...	...	...	...	...	...	...	...	...	...
Estonia	0	0	0	0	0	0	0	62	0	62
Finland	0	0	27	198	0	0	530	641	0	1,497
France	0	0	1,745	1,829	3	4	7,084	8,153	14	16,804
Greece . . . . .	...	...	...	...	(1) 0	(1) 0	(1) 357	(2) 96	0	924
Ireland	0	0	347	437	0	0	2,670	2,283	0	7,616
Italy	1	0	47	61	9	0	419	301	2	1,137
Latvia	0	0	0	0	0	0	0	0	0	0
Norway	0	0	215	279	0	1	1,003	1,355	5	3,536
Netherlands	0	2	1,347	2,354	0	3	5,958	9,073	8	21,062
Poland-Danzig	0	0	0	0	0	0	0	47	0	60
Portugal	0	0	18	142	0	0	354	557	0	1,223
United Kingdom	194	229	4,900	5,633	914	792	23,748	29,781	2,790	71,039
Sweden	0	0	73	495	0	0	289	1,300	0	4,166
Switzerland	0	0	161	250	0	0	739	893	0	2,306
Czecho-Slovakia	0	38	219	39	0	38	687	267	198	1,072
Canada	0	0	52	3	1	2	2,344	1,732	2	3,811
Peru . . . . .	...	...	...	...	(2) 0	(2) 0	(2) 0	(2) 1	2	3
Chosen . . . . .	...	...	...	...	(1) 6	(1) 2	(1) 0	(1) 15	102	22
Japan . . . . .	...	...	...	...	...	...	(2) 950	(2) 717	...	5,451
Palestine . . . . .	...	...	...	...	(1) 0	(1) 5	(1) 33	(1) 15	29	127
Algeria	16	0	0	0	30	0	93	24	8	41
Tunisia . . . . .	...	...	...	...	(1) 0	(1) 0	(1) 134	(1) 137	0	222
Australia	0	0	0	0	0	0	0	26	158	27
New Zealand . . . . .	...	...	...	...	(1) 0	(1) 0	(1) 0	(1) 0	0	2
Total	7,024	12,361	11,323	16,239	43,698	61,600	57,980	90,113	203,665	226,855

(1) Up to January 31. — (2) Up to December 31. — (3) Up to November 30. — (4) Up to September 30. — (5) From January 1, 1938 not including trade between Germany and Austria.

COUNTRIES	FEBRUARY				TWO MONTHS (January 1-February 28)				TWELVE MONTHS (January 1-Dec. 31)	
	EXPORTS		IMPORTS		EXPORTS		IMPORTS		EXPORTS	IMPORTS
	1939	1938	1939	1938	1939	1938	1939	1938	1938	1938
Rice. — Thousand centals (1 cental = 100 lb.).										
<i>Exporting Countries:</i>										
Spain	—	—	—	—	—	—	—	—	—	—
Italy	489	430	0	0	770	626	0	1	3,496	4
United States	302	79	42	28	614	529	89	84	3,232	581
Brazil	...	...	—	—	...	...	—	—	(2) 1,156	—
Burma	8,103	6,460	2	2	14,170	10,321	6	4	63,090	27
Chosen	...	...	...	...	(x) 235	(x) 16	(x) 0	(x) 0	1,039	0
Taiwan	...	...	...	...	...	...	...	...	(2) 219	(2) 0
Indochina	2,990	2,472	...	...	4,768	3,836	(x) 24	(x) 11	22,329	263
Iraq	...	...	...	...	...	...	...	...	89	0
Iran	...	...	...	...	...	...	...	...	705	12
Siam	3,193	3,412	—	—	5,911	5,947	—	—	32,235	—
Egypt	...	...	...	...	(x) 379	(x) 116	(x) 0	(x) 0	1,442	202
Madagascar	13	12	0	0	24	24	0	0	250	0
Australia	19	10	2	2	40	24	8	5	280	27
<i>Importing Countries:</i>										
Germany (5)	24	31	561	317	67	52	1,045	730	503	6,077
Austria (5)	0	0	100	30	0	0	134	64	0	474
Belgo-Luxemb. E. U.	33	17	103	34	71	39	202	127	328	1,565
Denmark	0	0	4	2	0	0	21	32	3	309
Estonia	—	—	1	1	—	—	2	3	—	24
Finland	—	—	10	16	—	—	24	39	—	297
France	11	20	490	1,062	22	41	819	2,002	386	13,238
Greece	...	...	...	...	(x) 0	(x) 0	(x) 54	(x) 87	0	625
Hungary	0	0	27	12	0	0	92	15	0	397
Ireland	0	0	3	2	0	0	10	12	0	77
Latvia	0	0	2	2	0	0	5	4	0	22
Lithuania	0	0	2	2	0	0	2	2	0	13
Norway	1	0	12	5	2	0	19	6	0	100
Netherlands	98	158	93	128	224	304	260	247	2,059	3,800
Poland-Danzig	6	11	1	123	7	31	1	124	129	1,064
Portugal	0	0	1	2	0	0	4	3	1	69
Romania	—	—	...	...	—	—	...	...	—	516
United Kingdom	6	7	89	80	17	10	211	208	98	3,013
Sweden	—	—	5	34	—	—	15	40	—	263
Switzerland	0	0	35	32	0	0	74	90	0	505
Czecho-Slovakia	0	0	69	36	0	0	149	73	0	1,052
Yugoslavia	0	0	38	41	0	0	90	71	0	497
U. S. S. R.	...	...	...	...	...	...	...	...	(4) 24	(4) 881
Canada	2	1	26	16	2	1	65	51	7	592
Haiti	—	—	...	...	—	—	...	...	—	18
Argentina	...	...	...	...	(x) 0	(x) 0	(x) 63	(x) 31	1	1,108
Chile	...	...	...	...	...	...	...	...	—	(2) 232
Colombia	—	—	...	...	—	—	...	...	—	(3) 224
Peru	...	...	...	...	...	...	...	...	0	714
Ceylon	0	0	1,227	1,112	0	0	2,305	2,026	2	11,922
China	57	1	449	396	82	2	768	1,279	10	8,953
India: by sea	413	404	3,717	1,614	821	822	6,387	3,121	5,923	24,295
India: by land	...	...	...	...	...	...	...	...	469	1,736
Netherlands Indies:	...	...	...	...	...	...	...	...	...	...
Java and Madura	6	2	...	...	13	8	(x) 0	(x) 15	176	454
Outer Provinces	...	...	...	...	(x) 17	(x) 16	(x) 408	(x) 469	189	6,845
Japan	...	...	...	...	...	...	...	...	184	500
British Malaya	...	...	...	...	(x) 436	(x) 363	(x) 1,625	(x) 1,339	4,562	18,662
Manchukuo	...	...	...	...	...	...	...	...	304	1,277
Palestine	...	...	...	...	(x) 10	(x) 4	(x) 33	(x) 25	119	495
Syria and Lebanon	0	0	13	10	0	0	47	34	1	384
Turkey	—	—	0	0	—	—	0	0	—	0
Algeria	21	0	12	36	78	1	26	50	65	1,088
French Morocco	—	—	...	...	—	—	...	...	—	236
Tunisia	...	...	...	...	(x) 0	(x) 0	(x) 2	(x) 54	1	502
Union of South Afr.	...	...	...	...	(x) 0	(x) 0	(x) 7	(x) 2	0	1,311
New Zealand	...	...	...	...	(x) 0	(x) 0	(x) 7	(x) 2	0	64
Total	15,787	13,527	7,136	5,177	28,780	23,133	15,096	12,547	145,106	117,606

(1) Up to January 31. — (2) Up to November 30. — (3) Up to October 31. — (4) Up to September 30. — (5) From January 1, 1938 not including trade between Germany and Austria.

COUNTRIES	FEBRUARY				TWO MONTHS (January 1-February 28)				TWELVE MONTHS (January 1-Dec. 31)	
	EXPORTS		IMPORTS		EXPORTS		IMPORTS		EXPORTS	IMPORTS
	1939	1938	1939	1938	1939	1938	1939	1938	1938	1938
Linseed. — Thousand centals (1 cental = 100 lb.).										
<i>Exporting Countries:</i>										
Latvia	19	10	10	1	41	32	19	4	74	18
Lithuania	32	26	0	0	80	41	0	0	125	0
Romania . . . . .	...	...	...	...	...	...	...	...	0	5
Argentina	3,593	2,036	—	—	7,198	6,062	—	—	27,886	—
Uruguay . . . . .	...	...	—	—	...	...	—	—	(2) 1,419	—
China	6	14	—	—	6	16	—	—	160	—
India: by sea	506	312	0	0	1,016	371	0	0	6,397	1
„ : by land . . . . .	—	—	...	...	—	—	...	...	—	326
Iraq . . . . .	...	...	—	—	...	...	—	—	82	—
Egypt . . . . .	...	...	...	...	(1) 0	(1) 0	(1) 0	(1) 0	4	6
French Morocco . . . . .	...	...	—	—	...	...	—	—	127	—
Tunisia . . . . .	...	...	...	...	(1) 0	(1) 0	(1) 0	(1) 0	0	0
New Zealand . . . . .	...	...	...	...	...	...	...	...	0	0
<i>Importing Countries:</i>										
Germany (3)	0	0	36	132	0	0	250	342	0	3,418
Austria (3)	0	0	0	0	0	0	0	1	0	4
Belgo-Luxemb. E. U	17	11	466	207	24	18	835	442	93	1,886
Denmark	0	0	68	36	0	1	109	52	1	372
Spain	—	—	—	—	—	—	—	—	—	—
Estonia	3	1	0	0	3	4	0	0	5	0
Finland	0	0	15	28	0	0	27	37	0	177
France	0	0	484	344	0	0	821	726	2	4,480
Greece . . . . .	...	...	...	...	(1) 0	(1) 0	(1) 4	(1) 3	0	75
Hungary	0	0	32	10	0	0	32	10	0	65
Ireland	0	0	18	2	0	0	27	15	0	139
Italy	0	0	41	113	0	0	145	251	0	1,160
Norway	0	0	54	20	0	0	99	51	0	463
Netherlands	31	28	1,062	1,053	55	47	1,591	1,541	124	6,572
Poland-Danzig	0	0	0	0	0	0	0	0	0	0
United Kingdom	0	0	643	582	0	0	1,131	813	0	6,191
Sweden	—	—	84	6	—	—	145	19	—	1,074
Czecho-Slovakia	0	0	17	14	0	0	43	33	0	385
Yugoslavia	0	0	10	27	0	0	33	37	0	216
Canada	1	1	33	65	5	3	34	88	7	399
United States	—	—	1,259	1,008	—	—	2,441	1,823	—	8,604
Burma	0	0	0	0	0	0	0	0	0	0
Japan . . . . .	...	...	...	...	...	...	...	...	2	177
Palestine . . . . .	—	—	...	...	—	—	(1) 0	(1) 0	—	14
Algeria	0	0	0	0	0	1	0	0	0	1
Australia	0	0	13	2	0	0	36	97	0	725
Total	4,208	2,439	4,345	3,650	8,428	6,595	7,822	6,385	36,508	36,953

(1) Up to January 31. — (2) Up to November 30. — (3) From January 1, 1938 not including trade between Germany and Austria.

COUNTRIES	FEBRUARY				SEVEN MONTHS (August 1-February 28)				TWELVE MONTHS (August 1-July 31)	
	EXPORTS		IMPORTS		EXPORTS		IMPORTS		EXPORTS	IMPORTS
	1939	1938	1939	1938	1938-39	1937-38	1938-39	1937-38	1937-38	1937-38
Cotton. — Thousand centals (1 cental = 100 lb.).										
<i>Exporting Countries:</i>										
United States . . .	1,390	2,108	42	94	12,991	22,640	429	326	29,884	795
Haiti . . .	...	...	—	—	(2) 2	(2) 9	—	—	105	—
Dominican Republic . . .	...	...	—	—	(2) 1	(2) 0	—	—	3	—
Argentina . . .	18	0	—	—	347	71	—	—	234	—
Brazil . . .	...	...	—	—	(3) 2,057	(3) 1,834	—	—	5,481	—
Peru . . .	...	...	—	—	(2) 939	(2) 893	—	—	1,489	—
Burma . . .	52	65	0	0	232	301	0	0	436	0
China . . .	24	178	163	5	1,235	333	594	63	1,955	181
India: by sea . . .	1,127	1,065	124	384	6,144	3,762	848	1,676	8,252	3,132
Netherlands Indies:										
Java and Madura . . .	2	0	—	—	10	7	—	—	11	—
Outer provinces . . .	...	...	—	—	(1) 10	(1) 13	—	—	49	—
Iraq . . .	...	...	...	...	(2) 29	(2) 34	(2) 1	(2) 2	85	5
Iran . . .	...	...	...	...	(2) 59	(2) 101	(2) 0	(2) 0	415	0
Syria and Lebanon . . .	4	9	0	0	38	35	0	0	53	0
Turkey . . .	0	71	—	—	264	174	—	—	479	—
Egypt . . .	...	...	—	—	(1) 3,996	(1) 4,820	—	—	8,567	—
French Morocco . . .	...	...	...	...	(2) 0	(2) 0	(2) 0	(2) 0	0	1
<i>Importing Countries:</i>										
Germany (6) . . .	0	0	528	627	0	0	3,773	4,419	0	6,914
Austria (6) . . .	0	0	48	62	0	0	482	500	0	832
Belgo-Luxemb. E. U. . .	69	60	198	276	481	478	1,418	1,599	841	2,714
Bulgaria . . .	0	0	19	20	0	0	154	147	0	258
Denmark . . .	—	—	8	18	—	—	108	123	—	190
Spain . . .	—	—	—	—	—	—	—	—	—	—
Estonia . . .	0	0	14	9	0	0	88	85	0	133
Finland . . .	0	0	28	14	0	0	228	231	1	324
France . . .	49	30	471	676	205	234	3,700	4,516	386	6,771
Greece . . .	...	...	...	...	(1) 0	(1) 0	(1) 18	(1) 33	0	66
Hungary . . .	0	0	41	35	0	0	371	310	0	500
Italy . . .	0	0	236	360	0	0	1,733	2,210	0	3,688
Latvia . . .	0	0	10	10	0	0	65	58	0	106
Lithuania . . .	0	0	4	2	0	0	31	31	0	55
Norway . . .	0	0	10	5	0	0	64	52	0	67
Netherlands . . .	0	2	69	98	9	5	707	792	12	1,198
Poland - Danzig . . .	0	0	120	134	1	1	970	1,029	2	1,772
Portugal . . .	—	—	26	62	—	—	326	364	—	645
Romania . . .	...	...	...	...	(2) 0	(2) 0	(2) 224	(2) 171	0	440
United Kingdom . . .	43	37	737	1,403	298	299	6,068	10,486	499	15,294
Sweden . . .	—	—	86	90	—	—	558	458	—	711
Switzerland . . .	0	0	63	63	0	2	354	487	3	718
Czecho-Slovakia . . .	1	4	151	165	7	29	757	1,240	45	1,982
Yugoslavia . . .	0	0	41	42	0	1	362	313	1	482
U. S. S. R. . . .	...	...	...	...	(5) 0	(5) 211	(5) 2	(5) 52	420	501
Canada . . .	—	—	60	109	—	—	771	909	—	1,400
Colombia . . .	—	—	...	...	—	—	(4) 16	(4) 19	—	91
Ceylon . . .	0	0	1	1	0	0	9	9	0	20
Chosen . . .	...	...	...	...	(1) 0	(1) 0	(1) 179	(1) 37	0	414
Taiwan . . .	—	—	...	...	—	—	(3) 0	(3) 0	—	3
Indochina . . .	...	...	...	...	(1) 3	(1) 6	(1) 378	(1) 41	8	219
Japan . . .	...	...	...	...	(2) 1	(2) 90	(2) 5,573	(2) 3,195	106	10,028
Manchukuo . . .	...	...	...	...	(2) 0	(2) 0	(2) 582	(2) 308	0	788
Palestine . . .	...	...	...	...	(1) 0	(1) 0	(1) 6	(1) 8	0	15
Algeria . . .	0	0	0	0	0	0	3	3	5	6
Union of South Afr. . .	...	...	...	...	(2) 3	(2) 4	(2) 6	(2) 16	5	28
Australia . . .	0	0	13	8	0	0	82	107	0	151
Total . . .	2,779	3,629	3,311	4,772	29,362	36,387	32,098	36,425	59,832	63,638

(1) Up to January 31. — (2) Up to December 31. — (3) Up to November 30. — (4) Up to October 31. — (5) Up to September 30. — (6) From January 1, 1938 not including trade between Germany and Austria.

COUNTRIES	FEBRUARY				SIX MONTHS (September 1-February 28)				TWELVE MONTHS (Sept. 1-Aug. 31)	
	EXPORTS		IMPORTS		EXPORTS		IMPORTS		EXPORTS	IMPORTS
	1939	1938	1939	1938	1938-39	1937-38	1938-39	1937-38	1937-38	1937-38
Wool. — Thousand lb.										
<i>Exporting Countries:</i>										
Ireland	1,415	456	57	49	8,054	3,497	408	379	9,370	734
Argentina	30,358	17,659	—	—	159,534	69,977	—	—	231,771	—
Chile	3,494	3,219	—	—	27,692	18,501	—	—	40,803	—
Peru	—	—	—	—	(3) 311	(3) 60	(3) 251	(3) 148	21,089	1,098
Uruguay	—	—	—	—	(2) 3,635	(2) 3,150	—	—	11,830	—
Burma	24	0	0	0	(3) 18,563	(3) 5,975	—	—	83,095	—
China	337	139	—	—	(3) 4,251	(3) 955	—	—	10,121	—
India: by sea	3,990	1,777	732	1,431	130	77	0	0	148	2
„ by land	—	—	—	—	4,678	4,806	—	—	8,735	—
Iraq	—	—	—	—	38,671	18,459	3,503	3,567	40,528	8,049
Iran	—	—	—	—	—	—	(2) 5,439	(2) 3,148	0	10,856
Manchukuo	—	—	—	—	(2) 6,764	(2) 3,309	(2) 4	(2) 13	6,041	637
Palestine	—	—	—	—	(2) 714	(2) 1,400	(2) 0	(2) 0	6,074	—
Syria and Lebanon	262	110	7	0	(2) 1,283	(2) 4,281	(2) 0	(2) 423	6,171	697
Turkey	873	364	—	—	(1) 51	(1) 86	(1) 15	(1) 35	203	97
Algeria	1,210	1,371	154	73	4,632	3,754	187	146	4,941	192
Egypt	—	—	—	—	10,441	8,384	—	—	12,097	—
French Morocco	—	—	—	—	8,855	9,123	1,100	556	21,826	1,321
Tunisia	—	—	—	—	(1) 2,266	(1) 1,166	(1) 159	(1) 26	2,491	104
Un. of S. Africa	—	—	—	—	(2) 3,847	(2) 3,036	(2) 9	(2) 9	13,761	9
Australia	91,904	92,211	1,034	888	(1) 966	(1) 1,299	(1) 57	(1) 589	2,288	1,016
„ (a)	4,947	5,152	9	7	(1) 95,610	(1) 98,099	(2) 747	(2) 1,325	210,461	2,066
„ (b)	38,480	39,101	—	—	(1) 2,670	(1) 2,335	(2) 509	—	6,989	—
New Zealand	4,123	2,253	—	—	515,328	422,341	6,984	4,341	732,887	13,481
„ (a)	—	—	—	—	35,838	26,443	161	51	54,545	403
„ (b)	—	—	—	—	108,051	95,048	(1) 46	(1) 24	212,471	99
„ (c)	—	—	—	—	17,566	9,956	(1) 4	(1) 2	41,731	2
<i>Importing Countries:</i>										
Germany (s)	13	0	34,981	29,271	18	4	96,265	98,472	7	279,904
„ (b)	0	0	1,911	1,951	0	93	15,677	15,957	117	30,713
Austria (s)	0	7	2,390	1,351	31	49	10,743	6,479	64	19,191
Belgo-Luxemb.	5,289	3,413	20,642	16,277	27,245	23,918	111,495	80,346	49,520	204,325
Econ. Un.	2,511	1,515	450	315	15,252	11,471	2,535	2,207	25,792	5,249
Bulgaria	0	0	90	123	0	0	545	536	0	1,409
Denmark	22	24	922	245	452	293	3,788	2,158	562	6,442
Spain	—	—	—	—	—	—	—	—	—	—
Estonia	0	0	71	20	0	0	403	260	0	604
Finland	0	0	439	558	24	97	3,027	2,840	143	5,578
France	4,418	3,100	59,355	41,507	29,218	25,062	215,073	155,645	48,054	367,190
Greece	—	—	—	—	(1) 670	(1) 858	(1) 2,403	(1) 2,793	1,733	5,706
Hungary	9	2	430	112	289	190	1,607	392	408	1,237
Italy	15	0	6,493	6,482	97	93	36,052	33,283	110	69,620
„ (a)	71	2	364	251	646	278	2,156	2,006	1,021	4,195
„ (b)	0	0	240	159	0	0	990	1,124	0	1,989
Latvia	0	0	71	79	0	0	503	476	0	888
Lithuania	152	141	196	190	873	1,362	1,071	1,609	1,806	—
Norway	128	227	595	904	611	1,362	4,354	2,586	2,174	7,253
Netherlands	24	26	774	891	146	220	5,368	2,756	516	7,606
„ (a)	0	0	5,300	4,228	4	49	24,485	16,506	53	44,095
„ (b)	225	0	71	736	620	611	1,761	1,252	957	2,961
Poland - Danzig	—	—	—	—	(2) 18	(2) 68	(2) 381	(2) 862	273	1,898
Portugal	—	—	—	—	129,789	104,041	448,181	346,881	278,376	843,721
Romania	30,245	26,310	90,782	71,979	—	—	13,708	8,034	—	17,163
United Kingdom	—	—	2,826	1,162	—	—	7,588	5,064	249	13,373
Sweden	18	7	1,764	736	141	90	8,807	9,407	626	30,675
Switzerland	13	37	2,509	2,302	337	357	6,971	5,838	4,431	15,161
Czechoslovakia	0	0	639	273	240	1,012	6,598	2,070	1,380	7,639
Yugoslavia	—	—	—	—	(4) 0	(4) 0	(4) 3,245	(4) 3,880	0	53,101
U. S. S. R.	—	—	—	—	(4) 0	(4) 0	(4) 763	(4) 1,023	0	13,907
Canada	306	467	1,618	1,268	1,799	2,266	6,971	5,838	4,431	15,161
United States	0	60	17,275	3,675	152	104	101,336	55,760	1,237	89,748
Japan	—	—	—	—	(2) 0	(2) 4	(2) 29,716	(2) 15,783	4	102,703
Total	224,876	199,150	255,191	189,493	1,289,121	988,977	1,187,469	898,529	2,211,883	2,297,964

(a) Unwashed wool. — (b) Washed wool.

(1) Up to January 31. — (2) Up to December 31. — (3) Up to November 30. — (4) Up to September 30. — (5) From January 1, 1938 not including trade between Germany and Austria.

COUNTRIES	FEBRUARY				TWO MONTHS (January 1-February 28)				TWELVE MONTHS (January 1-Dec. 31)	
	EXPORTS		IMPORTS		EXPORTS		IMPORTS		EXPORTS	IMPORTS
	1939	1938	1939	1938	1939	1938	1939	1938	1938	1938
Butter. — Thousand lb.										
<i>Exporting Countries:</i>										
Bulgaria.	0	0	0	0	4	0	0	0	53	0
Denmark.	22,024	24,474	0	0	44,031	47,589	0	0	348,433	0
Estonia.	1,620	1,795	0	0	3,408	3,236	0	0	32,479	0
Finland.	2,430	2,650	0	0	4,747	4,747	0	0	37,763	0
France.	386	313	170	106	847	655	216	207	6,442	1,340
Hungary.	333	875	0	0	728	1,962	0	0	7,760	0
Ireland.	185	476	60	0	384	1,184	71	0	42,278	644
Latvia.	2,273	2,718	0	0	5,249	5,273	0	0	51,460	0
Lithuania.	1,431	1,292	0	0	2,452	2,571	0	0	38,387	0
Norway.	0	176	0	0	42	176	0	0	1,797	0
Netherlands.	5,604	4,885	0	0	12,842	10,637	0	2	112,141	7
Poland-Danzig.	1,986	2,394	0	0	3,600	4,963	0	0	29,086	0
Romania. . . . .	...	...	...	...	...	...	...	...	256	0
Sweden.	3,999	5,353	0	0	7,079	10,558	0	0	62,953	2
Czecho-Slovakia.	0	725	71	0	0	1,116	267	0	1,773	2,266
Yugoslavia.	0	4	—	—	2	7	—	—	196	—
U. S. S. R. . . . .	...	...	...	...	...	...	...	...	(3) 351	(3) 611
Canada.	2,421	26	0	941	3,783	110	0	1,093	3,821	5,232
Argentina.	2,050	227	—	—	3,920	1,305	—	—	16,156	—
Chile. . . . .	...	...	...	...	...	...	...	...	(2) 4	(2) 0
Syria and Lebanon.	88	26	4	4	218	51	11	15	1,089	64
Turkey.	0	0	—	—	0	2	—	—	4	—
Union of South Afr. . . . .	...	...	...	...	...	...	...	...	3,536	2
Australia.	12,269	25,669	2	0	36,244	53,361	2	0	229,407	0
New Zealand.	22,146	23,420	...	...	54,807	69,062	(x) 0	(x) 0	293,233	7
<i>Importing Countries:</i>										
Germany (4).	0	0	13,907	16,581	0	0	28,700	36,323	0	203,465
Austria (4).	0	911	57	0	0	1,962	84	0	2,606	165
Belgo-Luxemb. E. U.	2	4	450	752	2	7	1,773	1,468	51	2,540
Spain.	—	—	—	—	—	—	—	—	—	—
Greece. . . . .	—	—	...	...	—	—	(x) 121	(x) 33	—	1,151
Italy.	128	161	35	29	235	395	66	62	1,883	463
Portugal.	7	2	0	0	15	9	0	0	115	0
United Kingdom.	1,664	1,173	75,802	96,153	3,419	2,048	164,055	171,639	10,174	1,065,630
Switzerland.	2	0	9	73	4	2	18	75	340	—
United States.	150	62	66	198	276	123	165	514	1,960	1,623
Peru. . . . .	...	...	...	...	...	...	...	...	194	355
Burma.	—	—	55	57	—	—	134	112	—	668
Ceylon.	—	—	55	62	—	—	152	119	—	858
China.	—	—	33	71	—	—	77	101	—	531
India: by sea.	73	545	35	117	130	1,254	146	203	5,463	966
" : by land.	—	—	—	—	—	—	—	—	—	5,908
Netherlands Indies:	—	—	—	—	—	—	—	—	—	—
Java and Madura.	—	—	—	—	—	—	(x) 397	(x) 591	—	6,978
Outer Provinces.	—	—	—	—	—	—	(x) 159	(x) 185	—	2,568
Indochina. . . . .	...	...	...	...	(x) 0	(x) 0	(x) 705	(x) 22	2	763
Iraq. . . . .	...	...	...	...	...	...	...	...	0	31
Iran. . . . .	...	...	...	...	...	...	...	...	20	0
Japan. . . . .	...	...	...	...	...	...	...	...	494	0
British Malaya. . . . .	...	...	...	...	(x) 49	(x) 35	(x) 373	(x) 359	626	4,691
Palestine.	—	—	—	—	—	—	(x) 496	(x) 326	—	4,495
Algeria.	2	0	317	254	2	0	681	567	11	4,332
Egypt. . . . .	...	...	...	...	(x) 53	(x) 2	(x) 73	(x) 108	335	1,325
French Morocco. . . . .	...	...	...	...	...	...	...	...	—	1,953
Tunisia. . . . .	...	...	...	...	(x) 0	(x) 0	(x) 139	(x) 236	2	1,475
Total.	83,273	100,356	91,128	115,398	188,562	224,402	199,081	214,360	1,344,805	1,323,449

(x) Up to January 31. — (a) Up to November 30. — (3) Up to September 30. — (4) From January 1, 1938 not including trade between Germany and Austria.

COUNTRIES	FEBRUARY				TWO MONTHS (January 1-February 28)				TWELVE MONTHS (Jan. 1-Dec. 31)	
	EXPORTS		IMPORTS		EXPORTS		IMPORTS		EXPORTS	IMPORTS
	1939	1938	1939	1938	1939	1938	1939	1938	1938	1938
Cheese. — Thousand lb.										
<i>Exporting Countries:</i>										
Bulgaria	254	348	0	0	403	741	0	0	3,660	0
Denmark	1,561	1,422	0	2	3,150	3,249	2	2	20,408	29
Estonia	64	51	0	0	139	84	0	0	507	2
Finland	1,096	1,008	4	2	2,048	2,088	7	4	14,930	35
Hungary	7	31	0	0	13	51	0	0	787	2
Ireland	71	203	2	2	223	384	7	7	2,262	40
Italy	4,217	3,157	545	827	7,293	7,068	1,382	1,640	53,286	10,221
Latvia	60	2	0	0	60	49	0	0	309	0
Lithuania	9	9	0	0	201	231	0	0	2,004	4
Norway	441	344	77	44	699	571	121	75	3,642	518
Netherlands	8,567	9,859	51	51	17,743	20,452	90	148	128,953	692
Poland-Danzig	7	0	31	13	66	9	46	33	503	317
Romania . . . . .	...	...	...	...	...	...	...	...	40	73
Switzerland	3,644	3,170	366	231	8,823	6,133	642	646	49,348	3,404
Czecho-Slovakia	35	406	317	276	82	730	589	412	1,753	3,071
Yugoslavia	73	110	0	4	132	223	4	9	3,384	46
Canada	895	419	95	95	2,224	774	154	159	80,989	1,387
Argentina	340	245	...	...	664	522	(x) 9	(x) 7	4,381	108
Turkey . . . . .	...	0	—	—	0	0	—	—	46	—
Union of South Afr.	...	...	...	...	...	...	...	...	2,716	362
Australia	2,427	3,188	13	9	7,646	6,786	31	18	34,732	143
New Zealand	15,708	9,460	...	...	36,601	34,002	(x) 0	(x) 0	180,381	9
<i>Importing Countries:</i>										
Germany (4)	86	9	5,459	6,460	194	46	9,634	12,531	225	72,003
Austria (4)	9	690	99	97	33	1,239	203	220	3,536	1,726
Belgo-Luxemb. E. U.	15	24	3,521	3,455	35	44	8,186	7,498	280	53,359
Spain	—	—	—	—	—	—	—	—	—	—
France	2,632	2,055	2,101	2,366	5,598	4,162	5,723	4,500	26,508	31,262
Greece . . . . .	...	...	...	...	(x) 2	(x) 7	(x) 187	(x) 46	225	1,534
Portugal	20	13	4	13	42	24	18	20	154	245
United Kingdom	326	328	21,881	30,516	683	688	49,763	51,233	4,859	329,202
Sweden	—	—	384	154	—	—	560	302	—	2,687
U. S. S. R. . . . .	...	...	...	...	...	...	...	...	(3) 35	(3) 192
United States	101	104	4,425	3,666	205	187	8,340	6,854	1,482	54,432
Chile . . . . .	...	...	...	...	...	...	...	...	(2) 13	(2) 75
Peru . . . . .	—	—	...	...	—	—	...	...	—	816
Burma	—	—	7	9	—	—	22	18	—	90
Ceylon	—	—	11	11	—	—	20	20	—	243
India: by sea	4	0	84	57	4	0	185	161	2	1,166
Netherlands Indies:	—	—	...	...	—	—	(x) 97	(x) 143	—	2,035
Java and Madura . . . . .	—	—	...	...	(x) 0	(x) 0	(x) 40	(x) 46	2	578
Indochina . . . . .	...	...	...	...	...	...	...	...	11	62
Iraq . . . . .	...	...	...	...	...	...	...	...	0	0
Iran . . . . .	...	...	...	...	...	...	...	...	—	11
Japan . . . . .	...	...	...	...	(x) 2	(x) 2	(x) 29	(x) 37	33	392
British Malaya . . . . .	...	...	...	...	(x) 0	(x) 0	(x) 205	(x) 159	35	2,112
Palestine . . . . .	...	...	...	...	...	...	...	...	783	591
Syria and Lebanon	29	18	35	44	55	29	79	84	35	12,432
Algeria	0	0	1,105	787	0	2	2,302	1,689	90	7,699
Egypt . . . . .	...	...	...	...	(x) 18	(x) 7	(x) 304	(x) 553	—	3,444
French Morocco . . . . .	...	...	...	...	(x) 0	(x) 7	(x) 181	(x) 218	62	2,683
Tunisia . . . . .	...	...	...	...	...	...	...	...	...	...
Total	42,698	36,673	40,617	49,189	95,081	90,581	89,162	89,492	627,461	601,534

(1) Up to January 31. — (2) Up to November 30. — (3) Up to September 30. — (4) From January 1, 1938 not including trade between Germany and Austria.

COUNTRIES	FEBRUARY				FIVE MONTHS (October 1-February 28)				TWELVE MONTHS (Oct. 1-Sept. 30)	
	EXPORTS		IMPORTS		EXPORTS		IMPORTS		EXPORTS	IMPORTS
	1939	1938	1939	1938	1938-39	1937-38	1938-39	1937-38	1937-38	1937-38
Cacao. — Thousand lb.										
<i>Exporting Countries:</i>										
Grenada . . . . .	...	...	—	—	(1) 2,330	(1) 1,389	—	—	9,209	—
Haiti . . . . .	...	...	—	—	(1) 2,445	(1) 2,172	—	—	3,452	—
Dominican Republic . . . . .	...	...	—	—	(2) 7,659	(2) 7,388	—	—	62,265	—
Brazil . . . . .	...	...	—	—	(3) 50,546	(3) 59,300	—	—	282,120	—
Equador . . . . .	...	...	—	—	(1) 9,449	(1) 9,107	—	—	41,013	—
Trinidad	1,314	5,891	—	—	7,352	13,329	—	—	42,102	—
Ceylon	743	833	—	—	3,618	4,634	—	—	8,836	—
Netherlands Indies:										
Java and Madura	359	128	—	—	1,689	1,325	—	—	3,415	—
Cameroon: Fr. m. t.	11,901	11,367	—	—	45,263	29,560	—	—	59,238	—
Ivory Coast	11,319	18,177	—	—	34,231	40,166	—	—	110,434	—
Gold Coast	118,106	7,416	—	—	352,040	98,651	—	—	513,000	—
Madagascar	55	62	—	—	439	276	—	—	545	—
Nigeria and Came- roon	50,444	36,502	—	—	146,817	113,869	—	—	211,819	—
São Thomé and Prin- cipe Islands . . . . .	...	...	—	—	(1) 12,251	(1) 11,718	—	—	24,978	—
Togo: Fr. m. t.	1,986	913	—	—	7,747	2,811	—	—	14,925	—
<i>Importing Countries:</i>										
Germany (5)	0	0	18,318	11,400	0	675	89,609	73,575	675	170,722
Austria (5)	—	—	1,585	712	—	—	9,841	4,782	—	14,376
Belgo-Luxemb. E. U.	0	0	1,713	1,475	0	9	10,743	8,878	130	24,513
Bulgaria	—	—	270	198	—	—	1,122	802	—	1,576
Denmark	0	0	1,241	1,464	11	0	5,262	4,162	9	11,050
Spain	—	—	—	—	—	—	—	—	—	—
Estonia	—	—	55	104	—	—	406	439	—	1,041
Finland	—	—	57	31	—	—	225	159	—	364
France	0	0	11,973	8,907	300	4	44,509	39,893	51	94,118
Greece	—	—	—	—	—	—	(1) 1,601	(1) 1,581	—	3,655
Hungary	—	—	1,400	820	—	—	9,342	3,142	—	9,330
Ireland	—	—	666	421	—	—	2,460	1,003	—	3,847
Italy	—	—	747	2,747	—	—	7,086	9,694	—	20,239
Latvia	0	0	112	128	0	0	963	778	0	1,713
Lithuania	—	—	112	51	—	—	582	476	—	1,332
Norway	0	0	571	642	0	0	2,912	3,045	0	8,730
Netherlands	24	798	19,478	20,014	1,100	3,027	70,956	66,538	5,379	164,540
Poland-Danzig	—	—	1,437	1,378	—	—	8,728	7,981	—	17,719
Portugal	0	0	97	137	0	0	560	485	2	1,096
Romania	—	—	—	—	—	—	(2) 1,184	(2) 847	—	3,607
United Kingdom	919	732	51,586	19,853	6,654	14,129	130,790	68,897	17,267	282,746
Sweden	—	—	1,206	1,358	—	—	7,743	5,772	—	14,070
Switzerland	0	2	1,859	2,626	44	137	8,078	6,371	262	18,503
Czecho-Slovakia	—	—	2,035	1,415	—	—	11,347	10,591	—	23,338
Yugoslavia	—	—	322	46	—	—	1,290	1,131	—	2,815
U. S. S. R.	—	—	—	—	—	—	—	—	—	32,558
Canada	—	—	1,887	1,283	—	—	8,995	7,187	—	21,830
United States	—	—	74,585	35,737	—	—	197,958	163,464	—	466,297
Argentina	—	—	—	—	—	—	(1) 3,624	(1) 3,948	—	12,877
Chile	—	—	—	—	—	—	(3) 243	(3) 293	—	1,982
Colombia	—	—	—	—	—	—	(4) 597	(4) 185	—	4,535
Peru	—	—	—	—	(2) 0	(2) 0	(2) 84	(2) 289	0	930
Uruguay	—	—	—	—	—	—	(3) 302	(3) 315	—	1,548
Iran	—	—	—	—	—	—	(2) 31	(2) 13	—	31
Japan	—	—	—	—	—	—	—	—	—	5,051
British Malaya	—	—	—	—	(1) 33	(1) 24	(1) 18	(1) 22	62	68
Palestine	—	—	—	—	—	—	(1) 265	(1) 287	—	822
Syria and Lebanon	—	—	0	0	—	—	0	0	—	7
Algeria	0	0	128	60	0	0	265	139	0	470
Egypt	—	—	—	—	—	—	(1) 503	(1) 291	—	796
French Morocco	—	—	—	—	—	—	(2) 42	(2) 55	—	95
Tunisia	—	—	—	—	—	—	(1) 4	(1) 0	—	4
Union of South Africa	—	—	—	—	—	—	(2) 635	(2) 628	—	3,968
Australia	0	0	1,376	1,329	0	0	5,470	5,229	7	17,315
New Zealand	—	—	—	—	—	—	(1) 633	(1) 622	—	5,512
Total	197,170	82,821	194,766	114,336	692,018	413,700	643,008	503,989	1,411,195	1,471,736

(1) Up to January 31. — (2) Up to December 31. — (3) Up to November 30. — (4) Up to October 31. — (5) From January 1, 1938 not including trade between Germany and Austria.

COUNTRIES	FEBRUARY				EIGHT MONTHS (July 1-February 28)				TWELVE MONTHS (July 1-June 30)	
	EXPORTS		IMPORTS		EXPORTS		IMPORTS		EXPORTS	IMPORTS
	1939	1938	1939	1938	1938-39	1937-38	1938-39	1937-38	1937-38	1937-38
Tea. — Thousand lb.										
<i>Exporting Countries:</i>										
Ceylon	16,775	16,954	0	0	141,173	134,515	0	0	231,823	0
China	1,695	4,125	220	11	71,137	53,255	2,668	99	72,746	485
Chosen . . . . .	...	...	...	...	(1) 128	(1) 75	(1) 0	(1) 2	95	2
Taiwan . . . . .	...	...	...	...	(3) 14,187	(3) 14,002	(3) 0	(3) 53	21,239	53
India: by sea	14,489	11,354	276	176	303,077	297,995	2,709	3,091	346,797	3,316
" : by land . . . . .	...	...	—	—	(2) 6,898	(2) 7,703	—	—	13,678	—
Netherlands Indies:	...	...	...	...	...	...	...	...	...	...
Java and Madura	10,904	9,916	...	...	82,028	78,752	(1) 335	(1) 317	123,464	791
Outer Provinces . . . . .	...	...	—	—	(1) 18,609	(1) 18,151	—	—	31,445	—
Indochina . . . . .	...	...	...	...	(1) 3,051	(1) 3,124	(1) 710	(1) 836	4,350	1,382
Japan . . . . .	...	...	...	...	(2) 27,022	(2) 32,730	(2) 86	(2) 110	41,112	112
<i>Importing Countries:</i>										
Germany (5)	4	9	1,627	917	108	245	9,482	7,641	306	10,992
Austria (5)	—	—	146	66	—	—	935	602	—	730
Belgo-Luxemb. R.U.	0	0	62	68	2	4	421	406	7	635
Bulgaria	—	—	2	7	—	—	51	73	—	82
Denmark	0	0	84	108	33	26	926	783	53	1,261
Spain	—	—	—	—	—	—	—	—	—	—
Estonia	—	—	11	9	—	—	66	68	—	99
Finland	—	—	33	26	—	—	225	192	—	273
France	0	4	247	333	9	15	1,865	2,000	20	2,978
Greece . . . . .	—	—	...	...	—	—	(1) 295	(1) 176	—	313
Hungary	—	—	73	35	—	—	443	355	—	487
Ireland	2	20	2,436	1,451	31	862	16,314	17,381	897	24,784
Italy	—	—	13	31	—	—	137	181	—	311
Latvia	0	0	7	7	0	0	44	49	—	73
Lithuania	—	—	11	11	—	—	57	60	—	90
Norway	0	0	26	37	0	0	249	267	—	377
Netherlands	20	33	2,438	2,108	130	154	19,562	17,452	207	27,157
Poland-Danzig	0	0	408	302	0	0	2,659	2,425	2	3,810
Portugal	—	—	9	35	—	—	209	256	0	377
Romania . . . . .	—	—	...	...	—	—	(2) 359	(2) 379	—	518
United Kingdom	5,474	5,697	28,169	32,446	41,136	44,527	400,614	403,073	69,977	526,336
Sweden	—	—	90	88	—	—	756	635	—	1,003
Switzerland	0	7	165	112	7	15	1,305	1,041	22	1,581
Czechoslovakia	—	—	82	79	—	—	884	913	—	1,204
Yugoslavia	—	—	29	35	—	—	384	335	—	443
U. S. S. R. . . . .	...	...	...	...	(4) 289	(4) 6,680	(4) 9,405	(4) 10,203	8,505	28,801
Canada	—	—	2,546	2,355	—	—	24,518	25,364	—	38,960
United States	—	—	7,932	7,319	—	—	58,648	61,170	—	85,839
Argentina . . . . .	—	—	...	...	—	—	(1) 3,027	(1) 2,804	—	4,142
Chile . . . . .	—	—	...	...	—	—	(3) 2,615	(3) 3,080	—	4,766
Peru . . . . .	—	—	...	...	—	—	(2) 595	(2) 853	—	1,501
Uruguay . . . . .	—	—	...	...	—	—	(3) 249	(3) 176	—	406
Burma	0	0	448	1,221	128	130	1,208	3,598	1,574	7,599
Iraq . . . . .	...	...	...	...	(2) 55	(2) 106	(2) 3,470	(2) 3,560	185	7,099
Iran . . . . .	...	...	...	...	(2) 0	(2) 0	(2) 8,300	(2) 7,024	—	17,749
British Malaya . . . . .	...	...	...	...	(1) 761	(1) 734	(1) 3,071	(1) 3,785	1,332	5,670
Manchukuo . . . . .	...	...	...	...	...	...	(2) 11,248	(2) 6,574	—	12,174
Palestine . . . . .	...	...	...	...	(1) 0	(1) 0	(1) 344	(1) 421	2	686
Syria and Lebanon	0	0	44	35	0	0	348	267	2	340
Turkey	—	—	159	196	—	—	1,369	1,579	—	2,161
Algeria	0	0	174	225	2	2	2,242	2,282	4	3,827
Egypt . . . . .	—	—	...	...	—	—	(1) 9,747	(1) 9,059	—	16,590
French Morocco . . . . .	...	...	...	...	(2) 487	(2) 154	(2) 11,462	(2) 10,468	833	19,178
Tunisia . . . . .	...	...	...	...	—	—	(1) 2,782	(1) 2,729	—	4,594
Union of South Afr. . . . .	...	...	...	...	(2) 227	(2) 152	(2) 8,655	(2) 8,232	472	15,516
Australia	33	24	3,644	2,985	331	309	32,651	28,975	454	45,179
New Zealand . . . . .	...	...	...	...	(1) 86	(1) 82	(1) 6,854	(1) 6,080	139	12,214
Total	49,396	48,138	51,611	52,834	711,132	694,499	667,558	659,534	971,742	947,046

(1) Up to January 31. — (2) Up to December 31. — (3) Up to November 30. — (4) Up to September 30. — (5) From January 1, 1938 not including trade between Germany and Austria.

COUNTRIES	FEBRUARY				EIGHT MONTHS (July 1-February 28)				TWELVE MONTHS (July 1-June 30)	
	EXPORTS		IMPORTS		EXPORTS		IMPORTS		EXPORTS	IMPORTS
	1939	1938	1939	1938	1938-39	1937-38	1938-39	1937-38	1937-38	1937-38
Coffee. — Thousand lb.										
<i>Exporting Countries:</i>										
Costa-Rica . . . . .	...	...	—	—	(2) 8,591	(2) 12,315	—	—	56,006	—
Guadeloupe	73	176	—	—	201	437	—	—	816	—
Jamaica . . . . .	...	...	—	—	(1) 5,005	(1) 4,034	—	—	8,296	—
Haiti . . . . .	...	...	—	—	(1) 32,831	(1) 25,948	—	—	50,341	—
Mexico . . . . .	...	...	—	—	(3) 11,559	(3) 9,676	—	—	71,792	—
Nicaragua . . . . .	...	...	—	—	(4) 3,878	(4) 1,634	—	—	30,905	—
Dominican Republic	...	...	—	—	(2) 7,670	(2) 8,378	—	—	19,213	—
Salvador . . . . .	...	...	—	—	(3) 17,899	(3) 19,890	—	—	116,843	—
Brazil	155,623	169,977	—	—	1,429,145	1,159,406	—	—	1,933,410	—
Colombia	34,366	50,259	—	—	358,607	353,369	—	—	531,757	—
British Guiana . . . .	...	...	—	—	(5) 18	(5) 108	—	—	227	—
Dutch Guiana . . . .	...	...	—	—	(2) 3,272	(2) 2,789	—	—	5,655	—
Peru . . . . .	...	...	—	—	(2) 3,812	(2) 3,860	(2) 2	(2) 4	5,481	9
Aden: by sea . . . . .	...	...	—	—	(2) 5,679	(2) 3,029	—	—	7,200	—
India: by sea	3,106	2,372	0	0	9,275	7,476	2	7	16,405	7
Netherlands Indies:										
Java and Madura . . .	5,210	4,890	—	—	38,484	60,158	—	—	71,529	—
Outer Provinces . . .	...	...	—	—	(1) 73,363	(1) 90,396	—	—	118,953	—
Indochina	106	51	11	7	741	203	57	93	811	141
Angola . . . . .	...	...	—	—	(3) 21,707	(3) 19,057	—	—	30,830	—
Belgian Congo . . . .	...	...	—	—	(2) 19,524	(2) 18,314	—	—	38,766	—
Ivory Coast . . . . .	...	...	—	—	(2) 12,200	(2) 10,318	—	—	29,798	—
Kenya . . . . .	...	...	—	—	(3) 8,591	(3) 7,789	—	—	36,156	—
Uganda . . . . .	...	...	—	—	(3) 14,416	(3) 12,465	—	—	28,149	—
Madagascar	7,577	9,614	—	—	67,146	51,540	—	—	70,828	—
Tanganyika . . . . .	...	...	—	—	(3) 17,271	(3) 19,200	—	—	32,342	—
New Caledonia . . . .	...	...	—	—	(3) 1,285	(3) 928	—	—	4,460	—
New Hebrides . . . .	...	...	—	—	(2) 617	(2) 595	—	—	1,235	—
<i>Importing Countries:</i>										
Germany (6)	0	0	31,634	33,746	0	0	286,478	260,470	0	400,425
Austria (6)	0	0	1,792	836	0	0	12,192	7,566	0	10,986
Belgo-Luxemb. E. U. .	46	181	9,107	7,846	3,783	2,650	74,920	76,077	4,526	117,632
Bulgaria	—	—	141	88	—	—	875	818	—	1,263
Denmark	24	0	10,591	6,916	503	472	65,447	42,602	767	62,056
Spain	—	—	—	—	—	—	—	—	—	—
Estonia	—	—	18	22	—	—	185	187	—	280
Finland	—	—	3,741	4,378	—	—	36,511	33,080	—	51,050
France	2	0	37,510	44,141	55	62	257,895	274,955	66	417,500
Greece	—	—	—	—	—	—	(1) 8,638	(1) 8,190	—	16,343
Hungary	—	—	463	340	—	—	3,073	2,945	—	4,334
Ireland	0	0	68	42	11	0	289	311	2	617
Italy	0	0	5,126	5,527	7	4	49,860	50,188	11	77,050
Latvia	0	0	55	31	0	0	291	267	0	443
Lithuania	—	—	49	44	—	—	238	225	—	375
Norway	2	13	1,830	2,615	75	126	24,659	20,940	205	38,239
Netherlands	1,080	802	6,784	5,721	10,346	4,079	79,358	62,704	8,256	101,631
Poland-Danzig	0	0	1,168	805	2	11	9,460	7,837	13	12,502
Portugal	117	201	1,021	1,565	1,091	1,396	8,322	8,505	2,310	14,288
Romania	—	—	—	—	—	—	(2) 3,547	(2) 3,104	—	6,475
United Kingdom . . .	545	855	11,623	10,673	8,433	4,400	24,573	26,090	8,971	50,795
Sweden	—	—	8,128	7,401	—	—	78,593	67,098	—	105,716
Switzerland	0	0	2,628	2,284	0	2	24,531	17,617	4	31,370
Czecho-Slovakia . . .	—	—	1,493	1,982	—	—	15,415	15,931	—	24,974
Yugoslavia	—	—	1,504	1,265	—	—	10,664	9,134	—	14,800
U. S. S. R.	—	—	—	—	—	—	(5) 893	(5) 187	—	1,398
Canada	62	13	3,629	2,767	254	260	26,822	24,853	401	41,950
United States	908	829	143,349	185,356	6,113	4,392	1,305,469	1,069,305	7,421	1,734,036
Argentina	—	—	—	—	—	—	(1) 32,035	(1) 30,792	—	58,268
Chile	—	—	—	—	—	—	(3) 3,305	(3) 4,396	—	8,799
Uruguay	—	—	—	—	—	—	(3) 2,780	(3) 2,328	—	5,754
Ceylon	0	0	258	377	0	0	2,209	2,388	2	3,283
Burma	15	0	22	37	31	7	209	198	29	293
Iraq	—	—	—	—	—	—	(2) 761	(2) 822	—	2,273
Iran	—	—	—	—	—	—	(2) 639	(2) 115	—	633
Japan	—	—	—	—	—	—	(2) 4,458	(2) 12,009	—	17,403
British Malaya	—	—	—	—	(1) 3,940	(1) 3,199	(1) 11,277	(1) 14,160	5,505	23,140
Palestine	—	—	—	—	(1) 0	(1) 0	(1) 1,523	(1) 2,791	0	4,830
Syria and Lebanon . .	0	0	258	417	—	—	1,784	1,922	0	3,311
Turkey	—	—	1,554	732	—	—	7,857	6,900	—	11,477
Algeria	0	0	2,363	2,557	4	4	24,716	21,835	7	35,120
Egypt	—	—	—	—	—	—	(1) 6,706	(1) 9,930	—	21,511
French Morocco . . .	—	—	—	—	—	—	(2) 2,551	(2) 3,027	—	5,937
Tunisia	—	—	—	—	(1) 7	(1) 0	(1) 2,134	(1) 2,033	4	3,415
Union of South Afr. .	—	—	—	—	(2) 11	(2) 7	(2) 18,583	(2) 15,715	18	34,425
Australia	4	4	262	245	73	26	2,083	2,185	46	4,445
New Zealand	—	—	—	—	0	0	(1) 313	(1) 1,501	2	1,744
Total	208,866	240,237	288,180	330,763	2,207,526	1,924,409	2,535,182	2,226,337	3,356,770	3,584,746

STOCKS

Total stocks of home-grown cereals and linseed in Canada on March 31

PRODUCTS	1939	1938	1937	1936	1935
	1,000 cents				
Wheat	120,505	50,136	69,127	148,078	169,819
Rye	2,756	1,115	1,091	3,908	2,583
Barley	17,185	12,354	9,483	15,095	10,928
Oats	49,499	26,497	27,231	52,966	38,485
Linseed	206	295	497	389	325

Stocks of cereals, linseed and potatoes in farmers' hands in Canada on March 31

PRODUCTS	1939	1938	1937	1936	1935	1939	1938	1937	1936	1935
	Percentage of total production					Stocks in 1,000 cents				
Wheat	17	22	21	16	22	36,732	23,388	26,539	28,052	36,276
Rye	25	12	9	23	14	1,530	389	207	1,220	418
Barley	28	20	16	26	20	13,920	8,189	5,374	10,536	6,243
Oats	31	25	25	36	30	39,244	23,135	23,147	48,336	33,173
Linseed	14	11	12	14	18	109	48	123	135	93
Potatoes	—	33	26	30	41	—	13,878	10,482	11,447	19,740

Total stocks of home-grown and foreign wheat in different locations in Canada on March 31

LOCATION (1)	1939	1938	1937	1936	1935
	1,000 cents				
On farms	36,732	23,388	26,539	28,052	36,276
In country and interior terminal elevators, Western division	30,112	9,843	15,462	44,713	59,323
In terminal elevators Lake Superior (2)	24,823	7,886	6,825	26,570	38,292
In elevators Pacific Coast (3)	5,647	1,070	4,773	7,528	7,364
In Port Churchill elevators	1,328	7	369	1,369	1,434
In elevators Eastern region	13,127	4,428	8,579	30,169	18,602
In flour mills	4,558	2,702	3,860	5,699	5,468
In transit	4,178	811	2,720	3,978	3,060
Total Canadian wheat as grain	120,505	50,136	69,127	148,078	169,819
U. S. grain in store in Canada	65	596	0	0	629
TOTAL WHEAT AS GRAIN IN CANADA	120,570	50,732	69,127	148,078	170,448

(1) Quantities allow for unloading at Canadian ports are included in stocks in terminal elevators Lake Superior or in elevators Eastern region. — (2) Port William and Port Arthur. — (3) Vancouver, New Westminster, Victoria, Prince Rupert.

Stocks of cereals in farmers' hands in the United States.

PRODUCTS	Percentage of total production					Stocks in 1,000 cents				
	April 1 1939	Jan. 1 1939	April 1 1938	April 1 1937	April 1 1936	April 1 1939	Jan. 1 1939	April 1 1938	April 1 1937	April 1 1936
Wheat	20.3	30.2	14.3	11.4	15.8	113,454	168,714	74,791	42,878	59,387
Oats	38.8	65.1	36.8	36.4	41.3	130,734	219,387	134,989	91,616	158,012
Maize (1)	47.4	78.9	45.7	32.6	40.5	674,368	1,006,477	599,827	229,081	456,992

(1) Data based on maize for grain.

Commercial cereals in store in Canada and the United States.

PRODUCTS AND LOCATION	Friday or Saturday nearest 1st of month (1)				
	April 1939	March 1939	February 1939	April 1938	April 1937
	thousand cents				
WHEAT :					
Canadian in Canada	83,439	85,827	90,226	26,039	40,930
U. S. in Canada	65	91	151	596	0
U. S. in the United States	49,613	57,284	65,362	32,656	20,845
Canadian in the United States	1,064	2,167	3,776	666	7,213
TOTAL	134,181	145,369	159,515	59,957	68,988
RYE :					
Canadian in Canada	1,216	1,180	1,176	716	879
U. S. in Canada	13	13	13	330	0
U. S. in the United States	4,273	4,277	4,551	1,911	1,692
Canadian in the United States	24	24	0	0	132
TOTAL	5,526	5,494	5,740	2,957	2,703
BARLEY :					
Canadian in Canada	3,252	3,026	3,151	4,121	4,086
U. S. in Canada	0	0	0	0	0
U. S. in the United States	4,887	5,628	6,601	4,713	5,351
Canadian in the United States	0	0	0	55	1,316
TOTAL	8,139	8,654	9,752	8,889	10,753
OATS :					
Canadian in Canada	3,260	2,939	3,012	3,242	3,737
U. S. in Canada	45	130	243	357	0
U. S. in the United States	4,039	4,688	4,974	6,765	5,881
Canadian in the United States	0	0	0	0	0
TOTAL	7,344	7,757	8,229	10,364	9,618
MAIZE :					
U. S. in Canada	1,691	2,112	2,322	223	0
Argentine in Canada	16	16	17	91	1,716
South African in Canada	195	238	278	1,023	439
Australian in Canada	88	99	105	0	0
U. S. in the United States	24,495	26,594	28,498	24,207	6,341
Of other origin in the United States	0	0	0	0	1,154
TOTAL	26,485	29,059	31,220	25,544	9,650

(1) Friday for Canada, Saturday for the United States.

Commercial cereals (¹) and oilseeds in store in Argentina

PRODUCTS	First day of month				
	March 1939	February 1939	January 1939	March 1938	March 1937
	1,000 centals				
Rye	1,289	742	287	835
Barley	3,570	1,089	2,611	2,383
Oats	5,636	4,269	4,625	5,002
Maize in the ports	525	2,011	3,187	61	—
Maize in other positions	3,349	5,477	678	—
TOTAL	5,360	8,664	739	11,761
Canaryseed	279	217	280	97
Linseed in the ports	5,682	4,331	2,350	4,991	—
Linseed other positions	6,614	5,225	7,183	—
TOTAL	⁵) 10,945	⁵) 7,575	12,174	14,825
Sunflowerseed	322	743	—	—

(¹) Figures for wheat of the 1938-39 crop in store have been withheld by governmental order. — (²) Including 445,000 centals of old crop. — (³) Including 756,000 centals of old crop.

Commercial wheat in store in Australia.

Stocks of wheat, stacked at country sidings and terminal ports in the States of New South Wales, Victoria, South Australia and Western Australia, during the last week of each month, amounted in March 1939 to 36,548,000 centals, in February 1939 to 41,814,000 centals, in January 1939 to 48,010,000 centals, in March 1938 to 50,215,000 centals and in March 1937 to 35,995,000 centals.

Quantities of cereals at sea with first destination Europe.

PRODUCTS	Saturday nearest 1st of month				
	April 1939	March 1939	February 1939	April 1938	April 1937
	thousand centals				
Wheat	17,582	22,939	22,690	23,986	33,029
Wheat-flour	689	837	633	1,000	916
TOTAL (¹)	18,566	24,139	23,597	25,416	34,339
Rye	293	58	197	269	552
Barley	3,424	2,428	2,268	2,796	1,940
Oats	1,210	896	915	1,344	1,491
Maize	6,542	6,797	9,696	5,530	14,563

(¹) Including flour in terms of grain.

AUTHORITY: Broomhall's Corn Trade News, Liverpool.

Cereals and potatoes belonging to farmers in Germany ⁽¹⁾.

PRODUCTS	Mar. 31, 1939	Feb. 28 1939	Mar. 31, 1938	Mar. 31, 1937	Mar. 31, 1939	Feb. 28, 1939	Mar. 31, 1938	Mar. 31, 1937
	Percentage of total production				Stocks in thousand centals			
Winter wheat	16	25	7	8	18,000	28,100	6,000	7,200
Spring wheat	20	30	11	17	2,200	3,200	1,200	1,200
Rye	19	27	10	14	36,000	51,200	14,900	22,800
Winter barley	18	23	12	12	6,200	7,900	2,600	3,000
Spring barley	23	31	17	19	13,600	18,300	9,500	9,500
Oats	40	49	31	34	56,100	68,800	40,100	42,100
Meslin	32	40	26	28	9,000	11,300	6,600	5,800
Late potatoes	30	39	31	31	321,800	418,400	347,300	305,500

⁽¹⁾ 1937 frontiers.AUTHORITY: *Reichsnährstand* (The absolute figures are calculated by the International Institute of Agriculture).Cereals ⁽¹⁾ in elevators, mills, manufacturing establishments, etc. ⁽²⁾ in Germany ⁽³⁾.

PRODUCTS AND LOCATION	Last day of month				
	March 1939	February 1939	January 1939	March 1938	March 1937
	thousand centals				
WHEAT:					
Grain in mills and elevators (a)	54,190	53,462	49,679	31,857	15,708
Grain held by manufactures, etc. (b)	955	818	723	196	170
Flour for bread in mills, etc. (a)	3,477	4,079	3,871	3,025	1,523
Flour for bread held by manufacturers, etc. (b)	26	44	40	33	24
TOTAL ⁽⁴⁾	59,523	59,432	55,290	35,876	17,838
RYE:					
Grain in mills and elevators (a)	59,856	57,530	52,492	34,148	19,828
Grain held by manufacturers, etc. (b)	1,634	1,290	1,206	1,290	306
Flour for bread in mills, etc. (a)	2,357	2,533	2,568	2,216	1,146
Flour for bread held by manufacturers, etc. (b)	9	13	11	15	40
TOTAL ⁽⁴⁾	64,410	61,963	56,882	38,092	21,636
BARLEY:					
In mills and elevators (a)	8,622	9,500	10,106	4,553	2,251
In manufacturing establishments, etc. (b) . .	6,806	8,404	8,649	5,456	3,139
TOTAL	15,428	17,904	18,755	10,009	5,390
OATS:					
In mills and elevators (a)	6,625	6,219	5,523	4,815	2,824
In manufacturing establishments, etc. (b) . .	864	809	703	703	628
TOTAL	7,489	7,028	6,226	5,518	3,452
MESLIN	783	723	551	443	183
MAIZE:					
In mills and elevators (a)	2,705	5,571	7,524	5,379	5,756
In manufacturing establishments, etc. (b) . .	448	511	750	254	271
TOTAL	3,153	6,082	8,274	5,633	6,027

⁽¹⁾ Excluding quantities in transit and stocks in the hands of bakers. — ⁽²⁾ Including cereals (a) in elevators and commercial mills, and (b) in the hands of manufacturers of mixed feedingstuffs, malt, coffee substitutes and other foodstuffs, and in breweries. — ⁽³⁾ 1937 frontiers. — ⁽⁴⁾ Including flour in terms of grain, on a basis which, in accordance with government regulations on milling, has been altered several times.

Wheat in collective depots ⁽¹⁾ in Italy.

SPECIFICATION	Last day of month				
	March 1939	February 1939	January 1939	March 1938	March 1937
	thousand centals				
Deliveries:					
During the month	282	332	546	445	368
Since the beginning of the compl. season	90,616	90,333	90,001	86,780	59,996
Sales:					
During the month	5,439	5,685	6,602	8,065	3,150
Since the beginning of the compl. season	65,505	60,066	54,381	71,703	54,087
stocks at the end of the month	25,111	30,267	35,620	15,077	5,909

⁽¹⁾ Farmers are required to deliver all wheat, except that retained for home consumption or seed, to collective depots (*ammassi collettivi*). Wheat imported definitely has also to pass through these depots.

Imported grain and flour at the ports of the United Kingdom and Ireland.

PRODUCTS AND LOCATION	First day of month				
	April 1939	March 1939	February 1939	April 1938	April 1937
	thousand centals				
WHEAT AS GRAIN:					
United Kingdom	11,928	8,904	7,800	4,642	5,784
Ireland	2,040	1,584	1,152	1,094	936
TOTAL	13,968	10,488	8,952	5,736	6,720
WHEAT-FLOUR (calculated as grain):					
United Kingdom	¹⁾ 432	¹⁾ 408	¹⁾ 456	¹⁾ 672	960
WHEAT AND FLOUR, TOTAL	14,400	10,896	9,408	6,408	7,680
BARLEY:					
United Kingdom	920	1,080	1,100	920	1,200
OATS:					
United Kingdom	240	224	144	224	288
MAIZE:					
United Kingdom	1,584	1,944	1,896	3,384	3,504
Ireland	1,032	1,128	1,080	432	528
TOTAL	2,616	3,072	2,976	3,816	4,032

⁽¹⁾ Including 10,000 centals in Irish ports. — ⁽²⁾ Including 14,000 centals in Irish ports.
AUTHORITY: *Broomhall's Corn Trade News, Liverpool*.

Stocks in farmers' hands in England and Wales.

PRODUCTS	Percentage of total production				Stocks in 1,000 centals			
	April 1 1939	Jan. 1 1939	April 1 1938	April 1 1937	April 1 1939	Jan. 1 1939	April 1 1938	April 1 1937
Wheat	13	42	12	13	5,555	17,293	3,707	3,883
Barley	10	37	7	10	1,859	6,586	860	1,515
Oats	17	53	16	17	4,010	12,611	3,420	4,190
Potatoes	16	53	17	14	12,678	41,754	12,063	9,088
Hay	14	66	24	21	13,754	64,893	37,637	29,766
Straw	20	62	19	18	17,472	54,992	14,817	15,296

Wheat and wheat-flour in the Union of South Africa.

LOCATION	Last day of month				
	February 1939	January 1939	December 1938	February 1938	February 1937
	thousand centals				
Wheat held by millers:					
South African	3,650	2,652	1,586	4,016	4,287
Imported	47	102	219	4	3
Wheat held by co-operatives	560	1,267	1,217	509	1,586
<i>Total . . .</i>	<i>4,257</i>	<i>4,021</i>	<i>3,022</i>	<i>4,529</i>	<i>5,876</i>
Wheat-flour and boermeal ⁽¹⁾ held by millers	261	243	213	199	231
<i>Grand total ⁽²⁾ . . .</i>	<i>4,609</i>	<i>4,349</i>	<i>3,311</i>	<i>4,796</i>	<i>6,186</i>

⁽¹⁾ 140 lb. wheat flour or 165 lb. boermeal correspond to 200 lb. wheat. — ⁽²⁾ Including flour in terms of grain.

Imported cereals in Antwerpen, Rotterdam and Amsterdam.

PRODUCTS AND LOCATION	Saturday nearest 1st of month ⁽¹⁾				
	April 1939	March 1939	February 1939	April 1938	April 1937
	thousand centals				
WHEAT:					
Antwerpen	1,156	916	646	1,679	1,729
Rotterdam	2,452	2,428	2,200	1,290	185
Amsterdam	42	40	59	14	12
RYE:					
Antwerpen	57	58	131	22	25
Rotterdam	0	0	0	44	14
Amsterdam	0	0	0	0	0
BARLEY:					
Antwerpen	84	122	216	252	383
Rotterdam	7	25	6	88	44
Amsterdam	3	11	8	4	2
OATS:					
Antwerpen	9	12	27	33	22
Rotterdam	0	3	4	17	0
Amsterdam	45	47	48	25	23
MAIZE:					
Antwerpen	93	124	39	165	58
Rotterdam	26	115	40	143	71
Amsterdam	55	95	94	56	11

⁽¹⁾ For Antwerpen the data refer to the last day of the preceding month, for Amsterdam to the first day of the month indicated.

AUTHORITIES: *Nederlandsche Silo-, Elevator- en Graanfactor Mij.*, Amsterdam, and *Chamber of Commerce and Industry for Rotterdam*, Rotterdam.

Cotton stocks on hand in the United States.

LOCATION	Last day of month				
	March 1939	February 1939	January 1939	March 1938	March 1937
	thousand centals				
In consuming establishments	7,031	7,740	8,079	8,798	10,155
In public storage and at compresses . . .	67,034	69,912	73,460	54,446	24,603
TOTAL . . .	74,065	77,652	81,539	63,244	34,758

Cotton stocks at Bombay, Alexandria and Port Sudan.

LOCATION	Thursday nearest 1st of month ⁽¹⁾				
	April 1939	March 1939	February 1939	April 1938	April 1937
	thousand centals				
Bombay ⁽²⁾	4,426	3,901	3,486	4,260	4,536
Alexandria ⁽²⁾	2,956	2,980	3,346	2,715	2,092
Port Sudan	638	247	238	634	276

⁽¹⁾ For Port Sudan the data refer to the last day of the preceding month. — ⁽²⁾ Stocks held by exporters, dealers and millers. — ⁽³⁾ Quantities consumed in Alexandria, or returned to the interior of the country, are not included.

AUTHORITIES: *East Indian Cotton Assn.* and *Commission de la Bourse de Minet-el-Bassal.*

Cotton stocks in Europe.

LOCATION, DESCRIPTION	Thursday or Friday nearest 1st of month ⁽¹⁾				
	April 1939	March 1939	February 1939	April 1938	April 1937
	thousand centals				
<i>Great Britain:</i>					
American	1,899	2,123	2,272	3,984	4,028
Argentine	56	59	67	39	392
Brazilian	476	533	560	372	956
Peruvian	748	780	788	409	540
East Indian	181	187	134	139	1,202
Egyptian	566	517	464	477	2,016
Sudanese	384	399	414	261	491
W. Indian, W. and E. African, and other.	235	239	260	255	232
Total	4,545	4,837	4,959	5,936	9,857
<i>Bremen:</i>					
American	679	714	723	1,040	712
South American	139	144	168	66	72
Other	167	152	132	141	177
Total	985	1,010	1,023	1,247	961
<i>Le Havre:</i>					
American	754	925	1,084	1,462	1,216
South American	103	135	179	28	39
French Colonial	101	123	154	32	42
Other	29	37	32	42	70
Total	987	1,220	1,449	1,564	1,367
<i>Total Continent ⁽²⁾:</i>					
American	1,663	1,903	2,096	2,840	2,016
South American	244	279	348	103	128
East Indian	101	91	69	90	110
Egyptian	126	97	87	88	97
W. Indian, W. and E. African, and other.	248	244	273	130	181
Total	2,382	2,614	2,873	3,251	2,532
Grand total . . .	6,927	7,451	7,832	9,187	12,389

⁽¹⁾ Thursday for Continent, Friday for Great Britain. — ⁽²⁾ Including Bremen and Le Havre.

AUTHORITIES: *Liverpool Cotton Assn.* and (for Le Havre) *Bulletin de Correspondance de la Bourse du Havre.*

PRICES

PRICES BY PRODUCTS

All quotations are spot, on Fridays, unless otherwise stated. The monthly averages are based on the Friday quotations, and the yearly averages on the monthly.

DESCRIPTION	April	April	March	March	AVERAGE				Commercial Season (*)	
	14	6 or 7	31	24	March	April	April			
	1939	1939	1939	1939	1939	1938	1937	1937-38	1936-37	
Wheat (†)										
Budapest: Tisza wheat, 78 kg. p. hl. (pengő p. quintal)	21.17	20.92	20.90	20.80	20.70	21.40	20.69	21.44	19.04	
Braila: Home-grown, good qual. (lei p. ql.)	420	400	435	435	432	532	536	520	* 486	
Winnipeg: No. 1 Manitoba (cents p. 60 lb.)	60 3/8	59	59 7/8	58 3/4	59 1/2	138 7/8	138	131 1/4	122 1/2	
Chicago: No. 2 Hard Winter (cents p. 60 lb.)	n. 72 3/4	n. 71 1/2	n. 70 3/4	n. 70	n. 71 1/4	n. 90 1/2	139 1/4	96 3/8	130	
Minneapolis (cents p. 60 lb.):										
No. 1 Northern	75 1/8	73 3/8	73 3/4	74 1/8	74 3/8	97 3/4	145 1/4	104 3/8	141	
No. 2 Amber Durum	69 7/8	68 1/8	69 3/4	71	70	88 3/8	133 1/2	93 3/4	138 3/8	
New York: No. 2 Hard Winter (cents p. 60 lb.)	83 7/8	82 3/8	82 3/4	81 3/4	82 3/8	107	154 1/8	112 7/8	142 5/8	
Buenos Aires (2): No. 2 Hard, 80 kg. p. hl. (paper pesos p. quintal)	7.00	7.00	7.00	7.00	7.00	11.41	13.93	12.20	12.28	
Karachi: White Karachi, 2% barley, 1 1/2% impurities (rupees p. 656 lb.)	23-2-0	22-12-0	23-11-0	23-14-0	23-12-10	23-13-0	33-12-15	26-15-9	31-4-11	
Hamburg (c. i. f.; Rm. p. quintal):										
No. 1 Manitoba	7.43	7.43	*) 7.86	*) 7.93	7.81	14.50	14.65	14.50	13.32	
Barusso, 80 kg. p. hl.	5.61	5.61	*) 5.61	*) 5.67	5.69	10.85	13.79	11.45	11.90	
Antwerpen (francs p. quintal):										
Home-grown	129.00	130.00	131.00	131.00	127.60	133.80	155.20	135.05	135.40	
No. 1 Manitoba (Atlantic; c. i. f., arrived)	90.00	90.00	90.00	91.00	92.00	174.50	177.60	171.20	154.50	
Bahia (c. i. f., arrived) (*)	71.00	71.50	71.00	71.00	73.20	125.40	163.40	142.10	141.05	
London, Mark Lane: English (sh. p. 504 lb.; on the farm)	19/6	n. q.	18/9	18/-	18/0 1/2	34/10 1/2	44/1 1/2	37/7 1/2	40/1 1/2	
Liverpool and London (c. i. f., parcels, shipping current month; sh. p. 480 lb.):										
French (on sample)	19/3	n. q.	*) 18/10 1/2	*) 19/-	18/9	n. q.	n. q.	n. q.	n. q.	
Danubian (on sample)	19/-	18/9	*) 18/7 1/2	*) 18/4 1/2	18/3	n. q.	* 46/3	* 36/2 1/2	* 38/1 1/2	
Soviet (on sample)	n. q.	n. q.	n. q.	n. q.	n. q.	* 32/8 1/2	n. q.	* 38/5 1/2	n. q.	
No. 1 Northern Manitoba (Atlantic) . .	*) 27/11 1/2	28/-	*) 28/1 1/2	*) 28/-	27/10 3/4	51/5	51/3 1/4	50/5 1/2	* 46/0 1/2	
No. 1 Northern Manitoba (Pacific) . .	25/10 1/2	25/6	*) 25/9 3/4	25/9	25/8 1/2	51/3	52/0 1/2	* 50/8	* 45/9 3/4	
No. 3 Northern Manitoba (Pacific) . .	22/7 1/2	22/-	*) 22/3 3/4	22/7 1/2	22/6 3/4	42/5	43/1 1/2	* 41/10 1/2	* 43/6	
No. 2 Hard Winter (Gulf)	n. q.	n. q.	n. q.	n. q.	n. q.	36/6 1/4	* 46/5 1/2	39/0 3/4	n. q.	
Soft White Pacific	n. q.	n. q.	n. q.	n. q.	n. q.	32/1 1/2	n. q.	* 33/10 1/4	n. q.	
Rosafé, 63 1/2 lb. p. bush (*)	20/3	20/1 1/2	*) 20/3	*) 20/3	20/6 1/4	37 0 1/2	46/4	38/2 1/4	* 39/3 3/4	
Choice White Karachi	n. q.	n. q.	n. q.	n. q.	n. q.	32/8 1/4	46/6 1/2	* 36/5 1/2	42/5 1/4	
West Australian (cargoes)	22/6	22/-	*) 21/-	21/6	21/8 1/2	34/2	47/2	37/7 1/2	43/4 1/2	
New South Wales (cargoes)	22/6	22/-	*) 21/-	21/6	21/8 1/2	33/11 1/2	* 46/4	37/6	43/0 1/2	

* Indicates that the product was not quoted during part of the period under review. — n. q. = not quoted. — n. = nominal. — (a) Thursday prices.

(†) For fixed prices of wheat see Crop Report July 1938, p. 681 (for Berlin and Italy) and Sept. 1938, p. 861 (for France). — (2) Before Aug. 1937, "Barusso". — (3) August-July. — (4) As from January 1939: 64 lb. — (5) Shipping April. — (6) Shipping April; French owned Yugoslavian wheat: 16/6. — (7) Shipping May. — (8) Afloat.

DESCRIPTION					AVERAGE						
	April	April	March	March	March	April	April	Commercial		1937-38	1936-37
	14	6 or 7	31	24				Season ¹⁾			
	1939	1939	1939	1939				1939	1938			1937
Rye ¹⁾.											
Hamburg: Plata, 72-73 kg. p. hl. (c.i.f.; Rm. p. quintal)	5.11	5.91	5.14	5.20	5.23	10.94	12.92	*	11.08	10.30	
Budapest: Pest rye (pengö p. quintal)	15.32	14.75	14.77	14.67	14.29	18.73	20.28		18.57	17.17	
Warszawa: Good quality (zloty p. quintal)	15.25	15.25	14.75	14.75	14.72	20.37	24.72		22.52	21.58	
Winnipeg: No. 2 rye (cents p. 56 lb.)	40 3/8	38 3/8	39	37 3/4	39 1/8	63 3/8	113 3/4		72 1/2	98 3/4	
Minneapolis: No. 2 rye (cents p. 56 lb.)	43 3/8	41 3/8	42	41 7/8	43	60 3/4	112 1/8		67 3/8	99 7/8	
Antwerpen (francs p. quintal):											
Home-grown	n. q.	n. q.	n. q.	n. q.	n. q.	123.80	n. q.		124.85	n. q.	
Soviet (c.i.f., arrived)	63.00	64.00	64.00	63.50	63.50	104.00	135.90		112.50	114.90	
Plata (c.i.f., arrived)	80.00	80.50	81.00	81.00	81.10	118.60	137.30		124.55	122.85	
Groningen (a): Home-grown (fl. p. quintal)	n. q.	8.00	7.87	7.80	7.78	6.59	8.62	*	7.12	8.12	
Barley ¹⁾.											
Warszawa (zloty per quintal):											
Malting, good quality	19.75	19.75	19.50	19.50	19.40	* 19.75	26.70	*	22.41	* 25.12	
Barley for other purposes, 1st quality	18.87	18.87	18.62	18.62	18.52	17.87	24.55		19.76	22.71	
Braila: Average quality (lei p. quintal)	360	360	n. q.	355	* 356	385	352		365	* 321	
Winnipeg: No. 4 Western (cents p. 48 lb.)	35 3/4	35 1/8	34 1/8	34 1/8	34 3/8	54 1/4	70 3/4		56 1/8	66 3/4	
Chicago: Feeding (on sample; cents p. 48 lb.)	40	40	40	38 1/2	37 3/4	52 3/4	78		51 3/8	74 3/4	
Minneapolis: No. 2 Feeding (cents p. 48 lb.)	42	42	42	42	42 1/4	50 7/8	78 1/2		53 3/4	77 3/4	
Antwerpen: (c.i.f., arrived; frs. per ql):											
Danubian	75.00	76.00	76.00	76.00	75.50	105.80	115.70		106.10	107.75	
No. 2 Federal ²⁾	71.50	73.00	73.00	74.50	73.90	98.30	n. q.		100.80	n. q.	
London, Mark Lane: English malting, good quality (sh. p. 448 lb., on farm)	35/-	n. q.	35/-	35/-	35/-	47/6	41/6		* 53/-	* 41/2	
Liverpool and London (c.i.f., parcels; shipping current month; sh. p. 400 lb.):											
Danubian, 3 % impurities	n. q.	n. q.	n. q.	n. q.	n. q.	n. q.	28/1		n. q.	* 23/5	
Soviet (Azov-Black Sea)	n. q.	n. q.	n. q.	n. q.	n. q.	n. q.	n. q.		* 24/-	n. q.	
No. 3 Canadian Western (Atlantic)	19/-	18/6	³⁾ 18/4 1/2	³⁾ 18/6	³⁾ 18/7 1/2	³⁾ 24/5 1/2	n. q.		* 25/11	* 27/3	
No. 3 Federal (Atlantic)	n. q.	n. q.	n. q.	n. q.	n. q.	21/5	n. q.		* 22/3	n. q.	
No. 1 Californian brewing (sh. p. 448 lb.)	30/-	30/-	³⁾ 30/-	28/6	28/10 1/4	31/2 1/2	n. q.		34/11 1/2	* 40/6	
Plata, 64-65 kg. p. hl. ³⁾	18/1 1/2	18/-	³⁾ 18/-	18/3	18/0 3/4	25/11 1/4	29/7 1/2		* 26/4 3/4	25/0 3/4	
Iraqian	17/3	17/1 1/2	³⁾ 17/3	17/1 1/2	17/2 3/4	* 23/-	27/2		24/5 3/4	23/11	
No. 1 Australian Chevalier (sh. p. 448 lb.)	25/6	25/6	³⁾ 25/6	25/6	25/10 1/4	34/9	n. q.		* 37/3	* 39/4	
Groningen (a): Home-grown, winter (fl. p. q.)	n. q.	n. q.	n. q.	7.77	n. q.	6.65	8.82		6.91	7.68	
Oats ¹⁾.											
Winnipeg: No. 2 White (cents per 34 lb.)	28 3/8	28 3/8	28 1/2	28 3/8	28 1/2	50 3/4	57 7/8		50 3/8	52 7/8	
Chicago: No. 2 White (cents per 32 lb.)	32 1/2	32	32 3/4	32 1/2	32 1/4	31 3/4	54 7/8		32 1/8	49 3/4	
Buenos Aires ^{b)} : No. 2 White, 49 kg. p. hl. (paper pesos p. quintal)	4.45	4.45	4.45	4.60	4.56	6.46	6.87		6.32	6.25	
Paris: Home-grown (delivery regional depots; frs. p. quintal)	98.75	98.25	99.00	101.25	99.65	129.40	120.85		128.75	115.80	
London, Mark Lane: English white (sh. p. 336 lb., on farm)	18/6	n. q.	18/-	18/-	18/2 1/2	25/6	25/3 1/2		26/6 3/4	23/9 3/4	
Liverpool and London (c.i.f., parcels; shipping current month; sh. p. 320 lb.):											
No. 1 Canadian feed (Atlantic)	³⁾ 15/3	³⁾ 15/-	³⁾ 15/1 1/2	³⁾ 15/1 1/2	³⁾ 15/0 1/4	* 23/0 1/2	* 27/5		* 24/-	* 24/-	
No. 2 Canadian Western (Atlantic)	³⁾ 16/3	³⁾ 16/-	³⁾ 16/1 1/2	³⁾ 16/-	³⁾ 15/11 1/4	n. q.	n. q.		n. q.	23/4 1/2	
Plata, f. a. q.	11/6	11/6	³⁾ 11/6	11/9	11/9 1/2	15/4 1/2	18/1 3/4		15/11 1/2	16/3 3/4	
Milano (c) (lire p. quintal):											
Home-grown	97.50	97.50	97.50	97.50	95.75	98.50	106.75		100.05	99.60	
Foreign	97.50	97.50	97.50	97.50	96.00	94.70	108.75		97.15	100.45	

* Indicates that the product was not quoted during part of the period under review. — n. q. = not quoted. — n. = nominal. — (a) Prices on preceding Tuesday. — (b) Thursday prices. — (c) Saturday prices.

(1) For the fixed prices of rye, feeding barley and oats in Berlin see Crop Report July 1938, p. 681; for those of malting barley in Praha see Crop Report August 1938, p. 781. — (2) As from Sept. 23, 1938: No. 3 Federal. — (3) Also indicated as "fair average quality" (f.a.q.). — (4) August-July. — (5) Shipping April. — (6) Shipping April, Pacific coast. — (7) Shipping Pacific. — (8) Shipping May.

DESCRIPTION	April	April	March	March	Average				
	14	6 or 7	31	24	Mar.	April	April	Commercial	
	1939	1939	1939	1939	1939	1938	1937	Season (*)	

* Indicates that the product was not quoted during part of the period under review. — n. q. = not quoted. — n. = nominal. — (a) Thursday prices. — (b) Saturday prices.

(1) Oct. 1936-Jan. 1938: maximum prices for best quality. To end December 1936: free at Milano station; subsequently: free at producer's station. — (2) For the maximum prices of rice in Italy see Crop Report Oct. 1938, p. 979. — (3) As from June 1936 "London Standard". — (4) Quotations refer to May futures from January to May, to July futures in June and July, to September futures in August and September and to December futures during the remaining months. — (5) From June 8, 1938 indicated as Mela-Sakellaris. — (6) Maize: May-April; cottonseed: Sept.-Aug. — (7) Shipping April-May. — (8) Afloat. — (9) Shipping April. — (10) Cargo.

DESCRIPTION	April	April	March	March	Average				Commercial Season (2)	
	14	6 or 7	31	24	March	April	April			
	1939	1939	1939	1939	1939	1938	1937	1937-38	1936-37	
Cotton (1).										
New Orleans: Middling (cents p. lb.) . .	8.43	8.43	8.59	8.61	8.70	9.85	13.92	8.87	12.78	
New York: Middling (cents p. lb.) . . .	n. 8.69	n. 8.73	n. 8.83	n. 8.90	n. 9.00	8.78	14.08	8.75	12.91	
Bombay (rupees p. 784 lb.):										
Broach, f.g. (futures) (2)	151-8	152-6	152-0	152-0	153-2	160-15	238-5	* 166-11	* 224-14	
Broach, f.g. (spot)	154-0	155-0	154-0	153-0	154-0	162-10	239-0	* 162-9	* 228-4	
Oomra, fine (spot)	143-0	142-0	142-0	142-0	143-0	147-3	228-10	* 148-13	* 214-14	
Alexandria (a) (talaris p. kantar):										
Sakellaridis, f.g.f.	11.10	11.35	11.75	11.85	12.21	12.79	21.68	14.19	19.22	
Giza 7, f.g.f.	10.87	11.12	11.57	11.62	12.06	12.26	21.55	12.81	17.22	
Ashmuni, f.g.f.	8.83	9.12	9.57	9.67	9.99	10.14	17.73	10.62	15.19	
Bremen: Middling (U.S. cents p. lb.) . .	10.16	10.14	10.15	10.30	10.27	10.57	16.22	10.63	15.01	
M.g. Broach, f.g. (pence p. lb.) . . .	n. 4.40	n. 4.35	n. 4.35	n. 4.35	n. 4.33	n. 4.56	n. 6.12	n. 4.68	n. 5.78	
Le Havre: Middling (futures; frs p. 50 kg.)	390.50	390.50	391.50	403.00	408.50	404.20	397.30	392.75	366.65	
Liverpool (pence per lb.):										
Middling, super good	5.63	5.62	5.65	5.86	5.91	5.67	8.45	5.79	7.89	
Middling	4.93	4.92	4.95	5.16	5.21	4.87	7.60	4.97	7.11	
São Paulo, g.f.	4.93	4.92	4.95	5.16	5.21	5.07	7.75	5.16	7.21	
Broach, good staple, f.g.	2) n. 3.73	2) n. 3.69	2) n. 3.69	2) n. 3.77	—	n. 3.93	n. 6.07	n. 4.04	n. 5.71	
C.P. Oomra, superfine	2) 4.13	2) 4.09	2) 4.09	2) 4.17	—	4.17	6.15	4.29	5.85	
Egyptian Sakellaridis, f.g.f.	6.60	6.53	6.67	6.88	6.96	8.01	12.05	8.22	10.79	
Giza 7, f.g.f.	6.60	6.53	6.67	6.88	6.96	7.06	10.84	7.42	* 9.72	
Upper Egyptian, f.g.f.	5.57	5.63	5.66	5.90	5.93	5.85	9.46	6.31	8.46	
Bacon.										
London, Provision Exchange (b) (shillings p. cwt.):								1938	1937	
English, No. 1, lean sizable	95/-	95/-	98/-	102/-	100/-	104/5	94/-	99/1	94/5	
Danish, No. 1, sizable	96/-	96/-	103/-	103/-	101/2	106/-	94/5	99/3	94/1	
Irish, No. 1, sizable	88/6	93/6	93/-	97/6	96/7	102/2	92/11	95/11	92/9	
Lithuanian, No. 1, sizable	85/-	83/-	86/-	92/-	90/10	97/-	87/2	91/8	87/4	
Dutch, No. 1, sizable	89/-	87/-	90/-	96/-	94/10	101/7	91/5	96/1	91/4	
Polish, No. 1, sizable	85/-	83/-	86/-	92/-	90/10	97/-	87/2	92/2	87/4	
Swedish, No. 1, sizable	89/-	87/-	90/-	96/-	94/10	102/-	91/5	96/1	91/2	
Canadian, No. 1, sizable	85/-	83/-	86/-	92/-	90/10	97/-	86/2	91/10	86/3	
Butter (3).										
Köbenhavn (a): Danish, for export (crs. p. quint.)	222.00	236.00	243.00	243.00	248.20	218.50	196.40	230.49	224.45	
Leeuwarden, Commission for butter quotations (a): Dutch, for export (cents p. kg.) (4)	74	75	77	80	80	86 1/4	69 1/4	80 1/4	77 1/4	
Antwerpen, auction: Belgian (frs. p. kg.)	19.60	19.40	20.10	20.45	22.05	21.82	17.58	23.30	22.65	
Liverpool: Irish creamery (sh. p. cwt.)	n. q.	n. q.	n. q.	n. q.	n. q.	129/6	119/-	* 124/6	121/3	
London (c): English blended (sh. p. cwt.) . . . . .	...	140/-	140/-	140/-	140/7	134/2	126/-	132/7	131/7	
London, Provision Exchange (b) (sh. p. cwt.):										
Danish creamery, unsalted	126/6	132/6	135/6	135/6	138/1	123/6	114/11	130/-	127/1	
Lithuanian, unsalted	113/-	114/6	116/6	n. q.	* 119/6	122/-	n. q.	* 115/8	* 114/11	
Dutch creamery, unsalted	106/-	110/-	110/-	114/-	* 113/10	119/5	101/7	* 113/10	* 109/7	
Argentine, finest, unsalted	n. q.	n. q.	n. q.	110/-	* 111/2	n. q.	* 95/10	* 103/-	* 94/4	
Siberian, salted	n. q.	n. q.	n. q.	n. q.	n. q.	n. q.	n. q.	n. q.	* 100/2	
Australian, finest, salted	112/6	113/-	113/6	114/6	114/11	121/8	104/-	114/9	109/8	
New Zealand, finest, salted	114/-	114/-	114/-	116/-	116/6	122/-	104/7	117/1	110/5	
Montreal (d): First grade creamery (cents p. lb.)	22	22 1/4	21 3/8	21 3/8	21 7/8	32 1/8	...	27	* 27 1/8	
New York (d): 92 score, creamery (cents p. lb.)	23 1/2	22 3/4	24 1/2	24 1/2	24 3/4	27 1/4	32 1/4	28	34 1/4	

* Indicates that the product was not quoted during part of the period under review. — n. q. = not quoted. — n. = nominal. — (2) Thursday prices. — (b) Average prices Thursdays, and Friday mornings. — (c) Average prices for weeks commencing on Thursdays. — (d) Wednesday prices.

(1) Quotations refer to April-May futures during the period September-May following, and to July-August futures during the other months. — (2) Quotation refers to futures for the current month. — (3) For fixed prices of butter in Germany see Crop Report Nov. 1938, p. 1080. — (4) For home prices these quotations must be increased by a consumption tax which, up to April 6, 1939 amounted to 60 cents per kg. and to 55 cents as from that date. — (5) Cotton: August-July. — (6) April futures. — (7) Fair staple.

DESCRIPTION	April	April	March	March	AVERAGE				
	14	6 or 7	31	24	March	April	April	Commercial Season	
	1939	1939	1939	1939	1939	1938	1937	1938	1937
Cheese (1).									
Milano (lire p. quintal):									
Parmigiano-Reggiano, 1st quality, production 1936 (2).	n. q.	n. q.	n. q.	n. q.	n. q.	1,280.00	n. q.	*1,229.00	* 868.80
Parmigiano-Reggiano, 1st quality, production 1937 (2).	1,200.00	1,200.00	1,200.00	1,190.00	1,190.00	1,150.00	918.00	1,130.85	895.15
Gorgonzola green, mature, choice	740.00	740.00	740.00	740.00	740.00	800.00	700.00	773.10	714.60
Roma: Roman Pecorino, choice (lire p. quintal)	1,100.00	1,100.00	1,100.00	1,100.00	1,100.00	1,032.00	937.50	1,058.30	954.05
Alkmaar: Edam 40+, National Mark, factory cheese, small (florins p. 50 kg.)	16.50	16.75	16.50	17.25	18.15	19.60	16.45	21.33	19.73
Gouda: Gouda 45+, National Mark, farm made, 1st quality (florins p. 50 kg.)	20.50	21.50	22.50	23.50	24.30	* 22.56	20.40	25.72	25.21
London, Provision Exchange (a) (shillings p. cwt.):									
English Cheddar, finest farmers	94/-	94/-	94/-	91/-	91/7	102/7	91/10	* 92/1	* 90/3
English Cheshire, Nat. Mark Selected.	88/8	85/2	93/4	100/4	98/11	92/10	101/-	96/9	97/10
Italian Gorgonzola	102/8	106/2	99/2	88/8	89/7	111/5	102/4	103/2	103/6
Dutch Edam, 40+ (b)	50/-	50/-	51/6	52/-	53/7	52/-	47/-	59/3	57/1
Canadian, finest white (b)	72/-	72/-	72/-	72/-	72/6	77/2	75/2	75/3	73/7
New Zealand, finest white	60/-	60/-	60/-	60/-	61/-	69/7	67/11	69/6	66/6
Eggs.									
Antwerpen, auction: Belgian, average quality (frs. p. 100)	45.00	46.00	46.00	46.00	43.20	40.00	33.20	58.80	52.05
Denmark (c): Danish for export (crs. per quintal)	82.00	76.00	80.00	80.00	75.50	73.00	69.00	116.70	109.13
Apeldoorn (d): Dutch, average quality 57/58 gr. each (fl. p. 100)	3.45	3.25	3.45	3.30	3.30	2.84	2.81	3.85	3.77
Barneveld (e): Dutch, average quality 57/58 gr. each (fl. p. 100)	3.35	3.55	3.50	3.35	3.28	2.87	2.80	3.90	3.77
Warszawa (b): Polish, average quality, 50 gr. each (zloty p. 100)	6.75	6.75	6.75	6.70	6.47	5.80	5.40	8.31	8.11
Liverpool: Irish, extra selected (sh. p. 120)	*) 10/3	(*) 9/6	n. q.	n. q.	* 9 1 1/2	8 7 1/4	8/5	13 7 1/2	13/1
London, Egg Exchange (d) (shillings p. 120):									
English, National Mark, specials	12/3	11/9	11/9	11/9	11 3 3/4	11/9	10 9 1/4	* 17 9 1/2	17/3
Belgian, 15 1/2 lb. p. 120	n. q.	n. q.	n. q.	n. q.	n. q.	n. q.	8/1	* 11/8	* 10/4
Danish, 17 lb. p. 120	9 10 1/2	9 7 1/2	9 10 1/2	10/-	9 4 1/2	9 7 1/2	8/10	12 7 1/4	12 2 1/4
Northern Irish, specials (2)	11 10 1/2	11 1 1/2	11/-	10 10 1/2	10 8 1/2	11/3	10 9 1/4	16 8 1/4	16/7
Lithuanian, 17 lb. per 120	9 4 1/2	9/-	n. q.	n. q.	* 8 2 1/2	8/7	8 0 1/2	* 10/10	* 10/2
Dutch, all brown, 67/69 grams each	11/6	11 1 1/2	11/3	11 4 1/2	11 0 1/2	11 10 1/2	10 6 1/2	14 3 3/4	14/1
Polish, 53/54 grams each	n. q.	7/3	6/6	n. q.	* 6 1 1/2	6 11 1/2	6 4 3/4	* 8/4	* 7 9 1/2
Romanian, 53/54 grams each	8/-	7/3	6 6 1/4	6 7 1/2	* 6 7 1/4	7/-	6 4 1/4	* 8 7 1/4	* 8 5 1/2
Chinese, "violet"	n. q.	n. q.	n. q.	n. q.	n. q.	n. q.	n. q.	* 8 11 1/2	* 8 11 1/2
South African, 17 lb. per 120	n. q.	n. q.	n. q.	n. q.	n. q.	n. q.	n. q.	* 13/11	* 13/8
Australian, 16 lb. p. 120	n. q.	n. q.	n. q.	n. q.	n. q.	n. q.	n. q.	* 12/10	* 11/8

* Indicates that the product was not quoted during part of the period under review. — n. q. = not quoted. — n. = nominal. — (a) Average prices Thursdays and Friday mornings. — (b) Average weekly prices. — (c) Average prices for weeks commencing on Thursdays. — (d) Prices on following Mondays. — (e) Thursday prices.

(1) For fixed prices of cheese in Germany see Crop Report August 1938, p. 782. — (2) Prices of 1936 cheese are compared with the yearly and monthly averages of cheese made in 1935 and 1934; prices of 1937 cheese with those of 1936 and 1935. The yearly averages refer to periods from Sept. to August. See Crop Report Jan. 1938, p. 92. — (3) Before Oct. 18, 1937, "Extra special" quality — (4) "Special" quality

OCEAN FREIGHT RATES ⁽¹⁾

DESCRIPTION	WEEK ENDING ON				AVERAGE				Commercial season ⁽²⁾	
	April 15 1939	April 8 1939	April 1 1939	March 25 1939	March 1939	April 1938	April 1937		1937-38	1936-37
Shipments of wheat and maize.										
<i>Rates in shillings per quarter:</i>										
Port Churchill to picked ports United Kingdom	n. q.	n. q.	n. q.	n. q.	n. q.	n. q.	n. q.		* 3/11 1/2	* 2/10 1/4
Montreal to picked ports United Kingdom	n. q.	n. q.	n. q.	n. q.	n. q.	n. q.	n. q.		* 3/3 3/4	* 2/6 1/2
St. John to Liverpool ⁽³⁾	2/11	2/11	2/11	2/11	2/11	3/-	* 2/11		* 3/5	* 2/10 1/4
New York to Liverpool ⁽³⁾	2/11	2/11	2/11	2/11	2/11	3/-	n. q.		* 3/3	n. q.
American Northern Range to picked ports United Kingdom or N.W. Continent	2/9	2/9	2/9	2/9	2/9	n. q.	2/10 1/2		* 3/6	* 2/9
Mexican Gulf to picked ports United Kingdom or N.W. Continent ⁽⁴⁾	3/6	3/6	3/6	3/6	3/6	2/11	n. q.		* 4/0 1/4	n. q.
<i>Rates in shillings per long ton:</i>										
Ports of lower Danube to Antwerpen or Rotterdam	n. 14/3	n. 14/-	n. 14/-	n. 14/-	n. 13/10	16/4	23/1 1/2		* 22/10	* 20/4
Russian Black Sea ports to Antwerpen or Rotterdam	n. 10/3	n. q.	n. q.	n. 10/6	11/-	10/9	n. q.		17/1 1/2	* 16/6
North Pacific coast to picked ports United Kingdom	23/2	23/2	22/9	22/8	23/1	25/5	29/10		33/3	* 29/6
La Plata Down River to picked ports United Kingdom or N.W. Continent	19/-	19/-	19/-	20/6	22/3	24/-	* 26/-		27/4	23/8
La Plata Up River to picked ports United Kingdom or N.W. Continent	20/-	20/-	20/-	21/8	23/4	25/-	27/10 1/2		28/6	24/10 3/8
South Australia to United Kingdom or N.W. Continent (wheat in bulk)	n. 32/-	n. 32/-	32/-	32/-	32/-	33/4	39/1		39/4	34/1
Shipments of rice.										
<i>Rates in shillings per long ton:</i>										
Saigon to picked French ports or Rotterdam	n. 26/7	26/6	n. 26/7	26/10	26/10	28/11	40/7		* 30/6	45/3
Burma to United Kingdom or N.W. Continent	n. 27/6	n. 27/6	26/6	26/6	26/10	31/3	n. 39/-		* 31/8	* 39/6

* Indicates that the rate was not quoted during part of the period under review. — n. q. = not quoted. — n. = nominal.

⁽²⁾ Average rates for entire cargoes, except where otherwise stated, relating to contracts made, during periods often extending back several months, to operate during the weeks specified. For more detailed explanations see the article with the same title on p. 392 of this Crop Report. — ⁽³⁾ Shipments of wheat and maize: Aug.-July. — ⁽⁴⁾ Rates for parcels by liners. — ⁽⁴⁾ Before October 1937, rates for parcels by liners. — ⁽⁴⁾ Freight rates quoted at Braila, not comparable with the other rates.

OCEAN FREIGHT RATES

Freights are an important element of cost and account for the greater part of the difference between the c. i. f. price on the import market and the price on the export market. It is for this reason that information on freight rates is given in the Crop Report.

At the moment of purchase of a parcel or cargo of grain on an import market, at a c. i. f. price to be shipped during the current month, or afloat, the shipping conditions are generally settled, so that the shipper can allow in his order, for the charges actually borne by the goods. The same is true of a c. i. f. sale of grain already in port. The prices given in this Crop Report relate wherever possible to goods that have arrived (spot) or are about to arrive. Hence, for comparisons between different markets, the freight actually paid, not the freight ruling at the time of shipping, which may not be for some months, is of first importance. Therefore, freights indicated in these tables represent, as far as possible, the average rates for contracts entered into during a period often going back several months to be applied during the period indicated.

The specifications hitherto given in the tables have been rather vague. This was especially the case for "United Kingdom" and "United Kingdom Continent" ports. A shipping contract does not stipulate a single freight rate for the transport of cereals to any United Kingdom or Continental port but, in addition to the basic freight rate for certain ports where it is possible to unload rapidly and usually to take on other cargoes (these are known as "picked ports"), supplementary charges are made for unloading at other ports.

Some examples of variations in basic freight rates are given below. Shipowners now make agreements on the minimum freight rates to be paid by cereal merchants. One of these agreements relates to shipments from Atlantic ports of the United States south of Cape Hatteras and from Gulf ports to European destinations. Minimum freights from Gulf ports were 3/6 per quarter (480 lb.) of wheat or maize from September 15, 1938 to March 23, 1939 for picked ports United Kingdom/Continent (abbreviated to p. p. U. K./C.) and from that date 3/3. These ports are London, Hull, Cardiff, Barry, Swansea, Antwerp, Rotterdam or Amsterdam. For barley, the minimum rate is reduced by 2d. per quarter of 400 lb., for oats by 4d. per quarter of 320 lb. For other ports supplements must be paid, e. g., 1d. for Leith, Avonmouth or Dunston; 2d. for Manchester, Liverpool, Birkenhead or Glasgow; 3d. for other British ports and certain Irish ports; the same for Continental ports between Antwerp and Hamburg (including the latter) other than Antwerp, Rotterdam, Amsterdam and the Weser ports; 4d. for certain difficult Irish ports (slow Irish ports) and for Weser ports; 6d. to 9d. for French, Spanish, Italian or Portuguese ports.

There are also other agreements (Schemes of Co-operation) which fix minimum freights for grain shipments to Europe. These cover shipments from ports on the St. Lawrence and the North Atlantic Coast ("Northern Range", including Albany), from River Plate ports and from Australian ports.

From St. Lawrence ports, Halifax, St. John (N. B.) and United States ports up to Albany, the minimum basic freight rate is 2/9 for the picked ports mentioned above with supplements about equal to those of the agreement relating to Gulf shipments.

Plata ports are divided into two principal groups, namely, Down River und Up River. Base freights apply to Up River ports not above San Lorenzo. For shipments of cereals to British picked ports (in this case, London, Hull, Cardiff, Barry,

Avonmouth, Liverpool or Birkenhead) the basic freight is 20/- per long ton (for shipments prior to March 18, 1939 the minimum was 25/-, other conditions being the same). An increase in freights of 1/3 is made for Colastine, Santa Fé, Concepcion and Paraná, and a reduction for Down River ports (9d. Mar del Plata, 1/- Buenos Aires or La Plata, 1/3 Montevideo or Bahia Blanca). For unloading at Antwerp or Rotterdam, reductions of 6d. and 3d. respectively are allowed. For Amsterdam the rate is the same as for British picked ports. There are a number of increases, the chief being 3d. for other British ports and northwestern Continental ports; 1/- for German ports; 1/3 for Marseilles, Genoa, Naples, or Leghorn; 1/9 for Italian ports other than those mentioned or those on the Adriatic, and 2/6 for Adriatic or Greek ports.

Shipments from Australia to Europe have a minimum rate of 31/- per long ton of cereals shipped in bulk from South Australia or Victoria to a United Kingdom port, other than a slow Irish port, or to a northwestern Continental port. From a Western Australia port the minimum is 30/-; from Sydney or Newcastle (New South Wales) it is 30/6 for loading ex-silo and 31/- ex-sacks. All these rates are increased by 2/6 for loading in sacks. Increases of 1/3 are applied for unloading at Marseilles, Genoa, Naples or Leghorn, 2/9 for Adriatic ports, 3/- for Port Said or Alexandria. The agreement also fixes minimum rates for shipments to Far Eastern ports with Shanghai as base. These are 17/- for bulk shipments from South Australia or Victoria, 16/- from Western Australia, 15/- from Sydney or Newcastle ex-silo and 15/6 ex-sacks; sack shipments 1/6 more. Prior to March 25, 1939 minimum rates for Europe were 1/- higher.

All agreements also provide for increases in case of loading or unloading at more than one port and for reductions on vessels carrying more than a fixed minimum cargo of grain (8,000 long tons for La Plata, 8,250 long tons for Australia and 15,000 quarters for North America).

This summary shows that the calculation of the average actual freight over a given period for the transport of a given quantity of maize or wheat is extremely complicated. We therefore indicate only the average freight which would probably be paid for shipments from a base port to London or to a port for which the rate is usually equal to that for London. The table of freights has been revised as far as possible in accordance with this criterium.

AVERAGE MONTHLY PRICES BY COUNTRIES (1)

GROUPS	DESCRIPTION	AVERAGE						Agricultural year (2)	
		March	Feb.	Jan.	Oct.	Jan.	Jan.	1937-38	1936-37
		1939	1939	1939	Dec. 1938	March 1938	March 1937		

GERMANY (Prices in Reichsmarks per quintal)

A I	†Wheat (Berlin) (3)	21.10	20.90	20.70	20.30	20.80	20.80	20.52	20.57
	†Rye (Berlin) (3)	19.40	19.20	18.90	18.50	19.00	17.10	18.69	16.68
	†Barley, feeding (Berlin) (3)	17.40	17.40	17.30	17.03	17.37	17.20	16.99	16.98
	†Oats (Berlin) (3)	17.80	17.70	17.60	17.30	17.20	16.80	16.87	16.77
	§Potatoes, red (Berlin)	5.20	4.90	4.70	4.37	4.90	4.90	4.91	4.91
A II	†Oxen, live weight (Berlin)	85.00	85.00	86.80	88.13	82.67	82.67	84.15	83.50
	Calves, live weight (Berlin)	95.40	95.40	95.40	95.40	92.60	83.93	93.98	96.75
	†Pigs, 220-265 lb., live weight (Berlin)	100.00	100.00	100.00	101.00	100.00	98.00	101.88	99.75
	Milk, fresh (Berlin) per hectolitre	16.62	16.62	16.62	15.60	15.60	14.62	15.35	14.61
	†Butter, National Mark	274.00	274.00	274.00	272.77	260.00	260.00	260.00	260.00
	Creamery butter	260.00	260.00	260.00	257.67	246.00	246.00	246.00	246.00
	†Cheese, Emmenthal type (Kempten)	160.00	160.00	160.00	160.00	160.00	160.00	160.00	160.00
	Soft cheese, 20 % butterfat (Kempten)	58.00	58.00	58.00	58.00	58.00	58.00	58.00	56.00
	†Eggs, aver. size, marked "G.I.B." (Berlin) per 100	9.92	10.50	12.11	11.38	10.25	10.00	10.68	9.53
B I	Basic slag (Aachen) (4)	0.220	0.220	0.220	0.207	0.220	0.220	0.212	0.214
	§Superphosphate of lime, 18 % (4)	0.314	0.314	0.307	0.301	0.312	0.312	0.309	0.309
	§Potash salts, 40-40.9 % (4)	5.24	5.24	5.24	5.08	5.24	6.86	5.05	6.48
	Sulphate of ammonia, 21 % (4)	0.480	0.480	0.470	0.450	0.477	0.678	0.457	0.600
B II	Wheat-bran (Hamburg)	12.25	12.25	12.25	12.25	12.25	12.25	12.25	12.25
	Linseed cake (Hamburg)	16.25	16.25	16.25	16.25	16.30	16.30	16.25	16.45
	Coconut cake (Hamburg)	14.65	14.65	14.65	14.65	14.70	14.70	14.65	15.10
	Groundnut cake (Hamburg)	15.75	15.75	15.75	15.75	15.80	15.80	15.75	15.95
	Crushed soya extraction residue (Hamburg)	15.45	15.45	15.45	15.45	15.50	15.50	15.45	15.45

BELGIUM (Prices in Belgian francs per quintal)

A I	Wheat (Antwerpen)	127.60	120.75	119.00	119.40	136.75	135.90	136.55	132.85
	Rye (Antwerpen)	n. q.	n. q.	n. q.	n. q.	126.40	n. q.	126.00	* 112.35
	Barley (Antwerpen)	n. q.	n. q.	n. q.	n. q.	125.85	n. q.	126.10	* 116.35
	Oats (Antwerpen)	82.00	83.50	89.00	83.40	120.00	114.85	119.65	109.80
	§Potatoes (Leuven)	32.50	33.75	32.50	29.50	37.85	40.10	45.30	37.40
	§Flax, fibre (Gent)	1,650.00	1,687.50	1,700.00	1,746.35	1,650.00	1,967.00	1,702.00	1,867.00
A II	Oxen, live weight (Curegem-Anderslecht)	518.00	506.00	492.00	506.55	537.35	507.00	523.10	506.00
	Calves, live weight (Curegem-Anderslecht)	766.00	689.00	791.00	1,002.35	873.65	866.35	803.00	780.00
	Pigs, live weight (Curegem-Anderslecht)	702.00	707.00	827.00	899.65	742.00	584.00	677.00	593.00
	Butter (Antwerpen)	2,205.00	2,530.00	2,440.00	2,625.35	2,442.00	2,295.65	2,354.00	2,011.00
	Eggs (Antwerpen) per 100	43.20	44.50	60.00	72.00	51.25	41.75	57.40	48.50
B I	Basic slag, 13-18 % (Charleroi) (4)	1.95	1.95	1.98	2.05	1.55	1.66	1.52	1.63
	Superphosphate of lime, 14 % (producers' store) (4)	2.50	2.50	2.50	2.50	2.50	1.81	2.41	1.90
	Sylvinite-Kainite, minimum 14 %	29.50	29.50	29.50	28.85	29.50	29.00	29.00	28.45
	§Nitrate of soda, 15 1/2 %	113.25	112.25	111.25	109.25	114.90	110.90	113.75	* 110.80
	§Sulphate of ammonia, 20 %	100.00	99.00	98.00	96.00	99.65	95.65	98.50	* 95.55
B II	Maize, Plata (Antwerpen)	84.50	82.00	89.85	82.40	111.40	82.85	103.55	83.05
	Linseed cake imported	108.00	114.00	120.00	116.25	124.10	115.40	117.85	110.50
	Coconut cake imported	94.00	94.50	95.00	99.60	117.00	111.00	116.25	107.30
	Groundnut cake imported	98.00	101.50	103.00	103.15	112.15	118.00	* 111.00	* 114.70

DENMARK (Prices in Danish crowns per quintal)

A I	Wheat (Köbenhavn)	14.16	14.03	14.34	13.83	17.85	19.68	18.06	19.25
	Barley (Köbenhavn)	11.25	11.75	11.99	11.84	17.49	18.83	17.26	17.27
	Oats (Köbenhavn)	11.65	11.87	12.05	11.25	15.78	15.76	15.93	15.98
A II	§Cows, live weight (Köbenhavn)	45.60	43.62	41.50	38.67	40.25	32.12	40.36	34.34
	†Pork, dead weight	178.80	176.00	170.00	166.83	175.20	161.17	177.16	167.25
	†Butter (Köbenhavn)	248.20	265.00	253.75	245.92	223.33	207.33	235.55	207.35
	†Eggs, for export	75.50	88.50	113.60	140.67	106.23	84.95	119.37	101.95

* Indicates that the product was not quoted during part of the period under review. — † Indicates that the series is published in the *International Yearbook of Agricultural Statistics* and used in the table of average monthly prices in gold francs per quintal. — § Indicates that the series is published in the *International Yearbook of Agricultural Statistics*.

(1) Prices, for several countries, of plant (A I) and animal (A II) products sold by the farmer; also of fertilizers (B I) and concentrated feedingstuffs (B II) bought by the farmer, are published quarterly (Jan., April, July and Oct.). In cases where the market is not indicated, the price is the average for the whole country. — (2) July to June. — (3) See note Crop Report, July 1938, p. 681. — (4) Prices per kg. of active fertilizer in 100 kg. of commercial fertilizer. — (5) Free at buyers' stations.

GROUPS	DESCRIPTION	AVERAGE							Agricultural year	
		March	Feb.	Jan.	Oct.	Jan.	Jan.	March	1937	1936-37
		1939	1939	1939	1938	1938	1937			

DENMARK (continued)

B I	Superphosphate, 18 %	6.80	6.80	6.70	6.47	6.77	6.47	6.61	6.33
	Potash salts, 40 %	13.95	13.95	13.45	13.12	13.78	13.78	13.49	13.52
	Sulphate of ammonia, 20.8 %	16.90	16.75	16.60	16.25	16.75	15.90	16.50	15.75
	Nitrate of lime, 15 1/2 %	16.85	16.70	16.55	16.20	16.70	15.85	16.45	15.70
B II	Rye, imported (Jutland)	14.12	14.12	14.85	14.44	17.81	18.86	17.81	16.80
	Maize, Plata (Jutland)	15.04	15.40	16.00	15.32	16.99	13.84	16.13	13.86
	Wheat-bran, Danish (Köbenhavn)	10.12	10.40	10.35	10.37	15.12	15.38	14.89	14.32
	Cottonseed cake (Köbenhavn)	14.14	14.40	14.95	14.43	15.86	17.87	16.24	17.03
	Sunflower-seed cake (Köbenhavn)	14.68	15.12	16.10	16.13	16.47	17.85	17.01	17.15
	Groundnut cake (Köbenhavn)	14.98	15.25	16.10	16.61	16.85	18.61	17.26	17.97
	Crushed soya extraction residue (Köbenhavn)	15.74	15.70	16.02	16.38	17.01	18.10	17.24	17.13

FRANCE (Prices in francs per quintal)

A I	Wheat (Paris) (1)	209.00	207.50	206.00	203.00	187.00	149.50	183.90	145.05
	Rye (Paris) (2)	124.00	126.00	131.00	124.65	159.65	123.00	142.80	128.35
	Barley, malting (Paris) (3)	117.40	123.50	125.50	124.15	172.75	129.65	171.05	126.80
	Oats (Paris)	99.65	102.70	102.30	98.30	123.60	122.65	127.30	113.20
	Wine, red, 20° (Montpellier) per hectolitre	167.00	163.00	163.00	155.00	153.00	146.00	155.00	129.00
A II	Beef, dead weight, 2nd quality (Paris)	994.00	978.00	1,007.00	1,000.65	1,116.65	881.35	1,042.00	858.00
	Mutton, dead weight, 2nd quality (Paris)	1,971.00	1,939.00	1,988.00	1,870.65	1,781.00	1,518.35	1,656.00	1,471.00
	Pigs, live weight (Paris)	899.00	896.00	970.00	969.00	813.35	631.65	784.00	633.00
B I	Basic slag, 18 % (Thionville) (4)	1.22	1.08	1.08	1.08	1.08	1.03	1.05	1.03
	Superphosphate, 14 % (North and East)	41.55	40.75	40.75	40.75	43.90	30.65	40.75	28.80
	Sylvinit, rich, 18 % (Upper-Alsace)	14.32	14.32	14.32	14.32	14.32	16.30	14.20	16.30
	Nitrate of soda, 16 %	137.85	136.35	134.85	131.85	116.75	88.50	116.05	86.10
	Sulphate of ammonia, 20.4 %	132.85	131.55	124.20	127.85	115.10	89.50	119.90	88.20
B II	Linseed cake (North)	159.50	164.00	165.50	158.40	136.65	95.40	134.55	91.55
	Coconut cake (Coudekerque)	135.00	135.00	135.00	n. q.	125.00	n. q.	125.00	n. q.
	Groundnut cake (Coudekerque) (5)	125.00	128.00	139.00	135.35	120.50	93.50	120.55	85.10

GREAT BRITAIN (Prices in shillings and pence: "A" per cwt; "B" per long ton).

A I	Wheat	4/1 1/2	4/3 1/2	4/5	4 7/8	8/1	9/3 1/2	8/6 1/2	8/9 1/2
	Barley, feeding	7/3 1/4	7/6 1/2	7/10 1/2	8/2 1/4	12/7 1/2	10/-	11/9 1/4	9/6
	Oats	6/10 1/2	6/2 3/4	6/3	6/1 3/4	8/5 1/2	8/3 1/4	8/6 1/4	7/7 3/4
	Potatoes (London)	6/-	5/6	5/7 1/2	4/8 1/4	6/6	8/10	7/1 3/4	8/7 1/4
A II	Beef, dead weight (London)	65/4	65/11	67/1	64/10	73/9	59/10	72/7	65/7
	Mutton, dead weight (London)	76/1	70/-	70/-	62/7	72/6	85/11	76/8	89/3
	Pork, dead weight (London)	84/-	83/8	83/5	81/6	81/9	76/11	80/9	75/6
	Butter (London)	140/7	142/4	133/-	127/-	132/5	122/-	137/-	124/2
	Cheese, Cheddar (London)	91/7	91/-	90/6	89/7	97/-	87/1	94/9	84/8
	Eggs, National Mark, (London) per 100	9/5	11/7	16/-	19/6 1/2	12/8 1/2	12/9 1/2	14/10 3/4	14/-
B I	Basic slag, 14 % (London)	46/-	46/-	46/-	46/-	46/-	45/-	45/3	44/3
	Superphosphate, 16 % (London)	59/-	59/-	59/-	59/-	61/-	60/-	60/9	58/-
	Kainite, 14 % (London)	55/-	55/-	55/-	55/-	55/-	55/-	55/-	55/-
	Nitrate of soda, 15 1/2-16 %	160/-	160/-	160/-	160/-	160/-	152/-	159/4	152/-
	Sulphate of ammonia, 20.6 %	154/-	152/-	151/-	147/8	152/4	143/6	149/7	141/4
B II	Bran, British (London)	119/-	122/-	121/7	120/-	157/6	155/9	150/7	138/10
	Bran, middlings, imported (London)	102/-	104/9	108/10	112/2	155/9	148/6	150/11	137/5
	Linseed cake, English (London)	200/-	197/-	198/5	196/7	213/10	202/-	203/3	194/2
	Cottonseed cake (London)	118/6	120/-	126/-	121/9	108/9	116/11	111/10	113/7
	Palm-kernel cake (Liverpool)	142/-	142/9	146/2	150/3	149/7	154/-	148/4	140/2
	Coconut cake (Liverpool)	150/-	149/3	150/-	151/2	155/10	147/6	151/1	142/7
	Groundnut cake (London)	142/9	145/3	148/2	143/4	147/-	169/-	152/-	162/5

*, †, §: See notes on page 394.

(r) See note in Crop Report September 1938, p. 861. — (2) Quotations at end of month. — (3) Before March 1938, quotations at end of month. — (4) Prices per kg. of active fertilizer in 100 kg. of commercial fertilizer. — (5) Before Dec. 1936, prices in Marseille. — (6) Extra white quality.

GROUPS	DESCRIPTION	AVERAGE						Agricultural year	
		March	Feb.	Jan.	Oct.- Dec.	Jan.- March	Jan.- March	1937-38	1936-37
		1939	1939	1939	1938	1938	1937		
ITALY (Prices in lire per quintal)									
A I	†Wheat, soft (Milano) ⁽¹⁾	148.00	148.00	148.00	148.00	138.00	124.00	138.85	123.75
	Wheat, hard (Catania) ⁽¹⁾	157.00	157.00	157.00	157.00	147.00	134.35	148.40	134.45
	Oats (Milano)	95.75	97.75	99.50	97.50	99.90	102.00	101.00	* 99.35
	†Maize (Milano)	90.00	90.00	90.00	90.00	83.30	82.00	84.35	85.35
	Rice, Vialone (Milano) ⁽²⁾	250.00	250.00	250.00	248.15	240.65	169.45	* 227.80	171.60
	†Rice, Maratelli (Milano) ⁽²⁾	195.00	195.00	195.00	193.15	184.85	150.20	* 180.20	151.85
	§Rice, Originario (Milano) ⁽³⁾	163.00	163.00	163.00	163.55	152.90	126.10	149.90	126.90
	§Hemp, fibre (Milano)	590.00	590.00	590.00	590.00	590.00	544.00	582.35	* 543.00
	§Olive oil " Soprafino locale " (Bari)	726.00	726.00	712.00	704.50	669.65	718.65	699.00	682.00
	Wine, ordinary, 11° (Bari) per hectolitre	106.50	105.50	106.00	125.65	107.50	50.00	97.55	51.25
A II	§Oxen, live weight (1st quality) (Milano)	491.25	470.00	444.00	435.00	490.90	420.00	462.10	380.65
	Lambs, dead weight (Roma)	676.80	699.60	661.85	673.35	768.65	761.35	791.60	714.10
	Pigs, live weight (Milano) ⁽²⁾	546.00	531.00	497.00	517.00	608.35	528.65	599.50	* 511.80
	†Cheese, Parmigiano-Reggiano (Milano)	1,190.00	1,182.50	1,172.50	*1,155.00	1,150.00	853.00	1,100.00	863.75
	Eggs (Milano) per 100	41.85	44.60	65.60	67.30	45.05	42.65	49.45	45.70
	Wool, Italian (Roma)	2,602.00	2,602.00	2,602.00	2,602.00	2,602.00	2,065.00	2,602.00	*2,114.00
B I	Superphosphate of lime, 14-16 % (Milano)	24.75	24.75	24.75	24.75	24.75	21.90	* 24.35	20.85
	Chloride of potash, 50 % (Milano)	71.50	71.50	71.50	71.50	72.20	n. 58.00	71.10	* 58.50
	Nitrate of lime, 15-16 % (Milano)	95.90	95.20	94.25	91.15	95.40	82.45	92.15	81.25
	Sulphate of ammonia, 20-21 % (Milano)	91.10	90.40	89.45	86.80	90.60	80.45	87.75	79.50
	Cyanamide of calcium, 15-16 % (Milano)	72.55	72.55	71.85	69.15	73.15	62.10	70.15	60.75
	§Copper sulphate, 98-99 % (Genova)	188.00	187.00	186.00	n. q.	* 200.50	183.15	* 200.20	* 186.20
B II	Wheat-bran (Genova)	67.50	67.50	67.50	60.00	60.00	48.00	57.15	45.05
	Rice-bran (Milano)	80.00	80.00	80.00	74.35	60.50	52.65	58.75	50.60
	Linseed cake (Milano)	81.00	81.00	81.00	81.00	85.50	85.50	85.50	83.95
	Groundnut cake (Milano) ⁽⁴⁾	65.00	65.00	65.00	63.00	55.00	61.15	55.00	65.30
	Rapeseed cake (Milano)	36.00	36.00	36.00	36.00	36.50	36.50	36.50	36.50

NETHERLANDS (Prices in florins per quintal)

A I	Wheat	10.15	10.00	9.85	9.55	9.96	9.70	9.98	9.84
	Rye (Groningen)	7.78	7.65	7.77	7.31	7.10	8.40	* 7.12	* 8.12
	Barley (Groningen)	n. q.	n. q.	* 8.30	7.89	6.77	8.29	7.03	7.48
	Oats (Groningen)	6.59	6.13	6.29	6.12	5.56	7.43	6.17	7.07
	Peas (Rotterdam)	11.35	11.32	11.37	11.24	14.36	14.66	* 14.69	* 13.53
	Flax, fibre (Rotterdam)	73.00	77.00	76.00	71.17	69.00	74.67	* 68.73	66.96
	Potatoes (Amsterdam)	4.45	4.77	4.87	3.98	4.90	3.54	5.14	3.66
A II	Beef, dead weight (Rotterdam)	73.00	70.00	71.00	71.50	76.83	69.00	76.29	66.75
	Pigs, live weight (Rotterdam)	47.00	47.00	48.00	51.33	58.00	46.00	57.29	43.54
	Butter for export (Leeuwarden)	80.00	85.75	84.25	77.67	80.67	67.17	84.50	66.10
	Cheese, Edam 40 % (Alkmaar)	36.30	39.88	40.12	44.40	43.75	36.41	42.23	35.15
	Cheese, Gouda 45 % (Gouda)	48.60	52.50	53.00	54.71	52.88	44.42	53.60	44.00
	Eggs, for export (Roermond) per 100	3.38	3.39	4.01	4.37	3.35	3.58	3.62	3.39
B I	Basic slag, 16 % (Zwolle)	2.26	2.28	2.30	2.28	1.89	1.97	1.77	1.83
	Superphosphate, 14 % (Zwolle)	1.72	1.65	1.65	1.65	1.91	1.81	1.92	1.71
	Kainite, 14 % (Zwolle)	1.70	1.70	1.64	1.61	1.65	1.59	1.63	1.50
	Nitrate of soda, 15 1/2 % (Zwolle)	6.43	6.35	6.30	6.19	6.34	6.09	6.33	6.07
	Sulphate of ammonia, 20 % (Zwolle)	5.53	5.45	5.40	5.30	5.44	5.13	5.38	5.08
B II	Maize (Rotterdam)	8.25	8.05	8.43	7.88	7.63	7.12	7.39	6.69
	Linseed cake, Dutch	8.39	8.22	8.44	8.70	9.01	8.02	8.91	8.08
	Coconut cake, Dutch	7.78	7.85	7.79	7.85	8.27	7.89	8.31	7.56
	Groundnut cake, Dutch	7.83	7.92	8.00	7.82	7.76	7.87	7.87	7.88

POLAND (Prices in zlotys per quintal)

A I	Wheat (Warszawa)	21.50	21.08	21.18	21.14	29.02	29.49	29.31	27.14
	Rye (Warszawa)	14.72	14.34	14.53	14.54	21.74	23.83	22.80	20.75
	Barley (Warszawa)	18.52	17.31	17.06	15.94	19.43	24.41	20.24	22.04
	Oats (Warszawa)	15.92	14.57	15.14	15.68	21.03	20.48	22.25	19.11
	Potatoes (Warszawa)	n. 4.25	n. q.	n. q.	3.99	n. q.	* 3.75	* 4.08	* 3.78
A II	Oxen live weight (Warszawa)	64.20	66.00	69.00	71.42	68.42	70.00	71.89	68.20
	Pigs, live weight (Warszawa)	103.00	101.25	94.50	95.32	89.92	98.67	98.26	94.42
	Butter (Warszawa)	355.00	336.00	311.00	320.00	340.00	309.67	317.50	289.75
	Eggs, (Warszawa) per 100	6.47	7.79	11.06	9.74	10.09	8.90	8.55	7.36

* †, ‡: see notes on page 76.

(1) See note in Crop Report July 1938, p. 681 (the farm price for hard wheat is 150 lire instead of 140 l. as indicated). — (2) See note in the Crop Report of Oct. 1938, p. 979. — (3) Before Feb. 1938, pigs weighing more than 150 kg.; subsequently, pigs of more than 180 kg. — (4) Price free at producer's station.

GROUPS	DESCRIPTION	AVERAGE						Agricultural year	
		March	Feb.	Jan.	Oct.-Dec.	Jan.-March	Jan.-March	1937-38	1936-37
		1939	1939	1939	1938	1938	1937		

POLAND (continued)

B I	Superphosphate ⁽¹⁾	0.60	0.59	0.59	0.60	0.64	0.64	0.64	0.64
	Potash salts, 20 %	7.25	7.25	7.25	7.15	7.25	7.74	7.19	7.54
	Sulphate of ammonia	20.70	20.70	20.70	20.70	20.70	20.70	20.70	20.70
B II	Wheat-bran (Warszawa)	12.55	11.56	11.69	10.14	15.58	16.06	15.65	13.66
	Rye-bran (Warszawa)	10.67	10.25	10.69	9.24	13.54	15.27	14.71	13.42
	Linseed cake (Warszawa)	23.05	23.75	23.62	20.33	20.95	25.02	21.87	20.94
	Rapeseed cake (Warszawa)	13.95	15.44	15.37	13.27	17.71	19.60	17.95	16.78

SWEDEN (Prices in Swedish crowns per quintal)

A I	Wheat (Stockholm)	17.46	17.47	17.25	17.00	20.45	19.99	* 20.15	* 19.09
	Rye (Stockholm)	16.50	16.75	16.62	16.53	18.88	19.02	* 18.79	* 18.15
	Barley	13.29	13.42	13.20	13.37	18.00	16.67	* 17.97	* 15.47
	Oats (Stockholm)	10.95	11.15	11.33	11.43	14.96	15.67	* 14.68	* 14.44
A II	Cows, live weight (Stockholm)	62.00	64.00	63.00	61.67	57.67	57.33	59.10	61.50
	Pigs, live weight (Göteborg)	102.00	105.00	109.00	105.67	98.33	89.00	98.40	87.00
	Butter (Malmö) ⁽²⁾	275.00	275.00	275.00	269.00	275.00	248.00	267.96	238.08
	Eggs (Stockholm)	112.50	117.50	142.00	169.67	133.95	134.17	137.20	132.62
B I	Superphosphate, 20 %	7.30	7.30	7.30	7.20	7.55	7.20	7.37	7.22
	Potash salts, 40 %	12.55	12.55	12.55	12.10	13.10	13.10	12.72	12.72
	Nitrate of soda, 15 ½ % - 16 %	17.25	17.25	17.25	17.65	17.65	17.05	17.39	17.11
	Nitrate cyanamide, 15 ½ %	16.55	16.55	16.55	16.95	16.95	16.05	16.61	16.11
B II	Maize, Plata	18.16	18.25	18.04	17.03	17.30	15.82	16.92	16.29
	Wheat-bran	12.51	12.80	12.80	13.12	14.26	15.03	14.14	14.39
	Groundnut cake	20.04	20.46	20.49	20.50	19.66	20.43	19.52	19.91
	Cottonseed cake	19.52	19.76	19.87	19.78	18.94	19.82	18.98	19.15
	Soya meal	20.31	20.52	20.60	20.64	19.14	19.53	19.08	19.14

CZECHO-SLOVAKIA (Prices in Czech. crowns per quintal)

A I	Wheat (Praha) ⁽³⁾	165.00	164.00	163.50	162.50	165.00	167.00	* 164.45	* 166.35
	Rye (Praha) ⁽⁴⁾	144.00	144.00	143.50	142.50	139.00	131.00	* 138.50	* 130.20
	Barley, malting (Praha) ⁽⁵⁾	135.00	135.00	135.00	133.00	135.00	139.00	* 133.65	* 135.00
	Oats (Praha) ⁽⁶⁾	124.00	124.00	122.50	120.65	123.50	118.00	* 122.10	* 117.10
	Potatoes, edible (Praha)	38.50	42.00	39.00	34.50	22.00	25.85	28.35	28.85
	Hops (Zatec)	4,485.00	4,485.00	2,295.00	1,851.65	1,441.65	1,981.65	1,586.25	1,868.65
A II	Beef, dead weight (Praha)	1,000.00	1,050.00	1,050.00	1,034.15	912.50	1,075.00	939.75	1,084.35
	Veal, dead weight (Praha)	800.00	775.00	750.00	833.35	741.65	891.65	763.50	898.95
	Pork, dead weight (Praha)	1,130.00	1,125.00	1,125.00	1,158.35	825.00	930.65	867.65	967.20
	Butter (Praha)	2,200.00	2,200.00	2,225.00	2,200.00	1,833.35	1,591.65	1,889.60	1,645.85
	Eggs (Praha) per 100	49.15	77.05	80.85	66.65	64.20	62.20	57.55	56.65
B I	Basic slag, 15 % . . . . .	...	...	36.50	36.50	36.20	35.45	35.95	35.15
	Superphosphate, 16-18 % . . . . .	...	...	55.65	55.65	54.05	49.60	54.00	49.65
	Kainite, 14 % . . . . .	...	...	24.40	24.45	24.05	23.25	24.00	22.80
	Nitrate of soda . . . . .	...	...	...	...	...	138.00	* 138.00	* 138.00
	Sulphate of ammonia, 20 ½ % . . . . .	...	...	118.40	123.40	123.40	123.40	122.40	122.00
B II	Maize, imported	107.50	109.50	110.00	110.65	109.00	107.85	108.75	107.30
	Wheat-bran (Praha) ⁽⁴⁾	105.00	105.00	105.00	105.00	105.00	105.00	105.00	105.00
	Rye-bran (Praha) ⁽⁴⁾	103.00	103.00	103.00	103.00	103.00	103.00	103.00	103.00
	Crushed soya (Praha, delivered Lovosice) ⁽⁴⁾	142.00	142.00	142.00	142.00	142.00	142.00	142.00	142.00
	Rapeseed cake (Praha, delivered Lovosice) ⁽⁴⁾	117.50	117.50	117.50	117.50	117.50	117.50	117.50	117.50
	Linseed cake (Praha, delivered Lovosice) ⁽⁴⁾	139.50	139.50	139.50	139.50	139.50	139.50	139.50	139.50
	Groundnut cake (Praha, delivered Strekov) ⁽⁴⁾	150.00	150.00	150.00	150.00	150.00	150.00	150.00	150.00

*† See notes on p. 394.

(1) Prices per kg. of active fertilizer in 100 kg. of commercial fertilizer. — (2) Prices for the home market. — (3) Producers' fixed prices, f.o.r. Praha; see also note in Crop Report, August 1938, p. 781. — (4) Wholesalers' selling prices.

AVERAGE MONTHLY PRICES IN GOLD FRANCS PER QUINTAL ⁽¹⁾

DESCRIPTION	March	Feb.	Jan.	Dec.	Nov.	Oct.	March	March	Year	
	1939	1939	1939	1938	1938	1938	1938	1937	1938	1937
Wheat.										
Budapest: Tisza	12.42	12.40	12.29	12.31	12.45	12.46	12.72	11.99	12.89	12.42
Winnipeg: No. 1 Manitoba	6.67	6.76	6.69	6.76	6.62	6.86	15.46	15.14	11.35	15.02
Chicago: No. 2 Hard Winter	n. 8.01	n. 8.08	n. 8.10	7.48	7.51	7.65	10.66	15.86	9.02	13.81
Buenos Aires: No. 2 Hard	6.69	6.69	6.67	5.76	6.03	6.46	11.66	13.11	9.15	13.58
Karachi: White Karachi	8.58	8.76	8.95	8.52	7.35	7.63	9.46	12.67	8.77	12.10
Berlin: Home-grown	26.06	25.81	25.56	25.32	25.07	24.82	25.68	25.68	25.15	25.37
Hamburg (c. i. f.):										
Manitoba No. 1	9.65	9.74	9.81	9.74	9.18	9.52	n. q.	18.27	* 13.91	18.03
Barusso	7.03	7.27	7.40	7.74	7.95	8.63	14.19	15.61	11.37	15.56
Antwerpen:										
No. 1 Manitoba (Atlantic)	9.55	9.66	9.61	9.21	8.77	10.53	19.08	17.43	14.74	17.60
Bahia ⁽²⁾	7.60	7.86	8.02	8.10	7.77	9.21	13.96	14.85	11.16	15.94
Paris: Home grown	16.94	16.81	16.62	16.47	16.39	16.43	18.12	21.28	17.17	20.19
Liverpool and London (c. i. f.):										
No. 1 North. Manitoba (Pacific)	8.46	8.76	8.88	8.59	8.30	8.63	17.65	17.77	* 13.34	17.69
No. 3 North. Manitoba (Pacific)	7.43	7.89	8.11	7.94	7.71	8.08	14.71	16.66	11.78	16.16
No. 2 Hard Winter	n. q.	7.29	7.07	6.99	n. q.	7.79	13.30	n. q.	* 11.48	* 15.18
Rosafé	6.76	7.03	7.08	7.38	7.48	8.11	13.29	13.86	* 10.95	* 14.37
Choice White Karachi	n. q.	n. q.	n. q.	n. q.	n. q.	n. q.	11.95	15.51	* 10.80	14.97
West Australian (cargoes)	7.15	7.62	7.68	7.60	7.77	8.77	12.48	15.71	10.61	15.24
Milano: Home-grown, soft	23.83	23.83	23.83	23.83	23.83	23.83	22.22	19.97	23.16	21.28
Rye.										
Berlin: Home-grown	23.96	23.71	23.34	23.09	22.85	22.60	23.46	21.11	22.86	22.01
Hamburg: Plata	6.46	6.68	6.83	n. q.	n. q.	n. q.	14.17	14.42	* 14.08	* 14.59
Budapest: Home-grown	8.57	8.37	8.46	8.57	8.97	9.20	11.41	11.31	10.19	11.65
Warszawa: Home-grown	8.56	8.34	8.45	8.34	8.43	8.59	12.21	14.41	10.81	14.16
Minneapolis: No. 2 rye	5.18	5.39	5.50	5.15	4.86	5.08	8.13	13.21	6.50	11.17
Barley.										
Braila: Home-grown	* 7.74	8.45	8.34	8.03	7.43	6.50	8.81	7.67	7.79	* 7.96
Praha: Home-grown, malting	*) 16.17	14.16	14.16	14.06	13.95	13.95	14.51	14.40	* 14.20	* 14.45
Winnipeg: No. 4 Western	4.81	4.98	4.90	4.84	4.55	4.78	8.22	10.67	6.49	9.20
Minneapolis: No. 2 Feeding	5.94	5.90	5.96	5.69	5.46	5.78	7.84	11.11	6.62	9.29
Berlin: Home-grown, fodder	21.49	21.49	21.37	21.24	20.99	20.87	21.49	21.49	20.98	21.16
Antwerpen: Danubian	7.83	7.65	8.18	8.10	7.17	7.78	11.16	11.28	9.76	11.48
Liverpool and London (c. i. f.):										
No. 3 Canadian Western	7.36	7.60	7.91	7.98	7.16	7.51	10.80	n. q.	9.34	* 11.86
Plata	7.12	7.12	7.61	n. q.	n. q.	n. q.	11.59	11.23	* 11.44	11.17
Iraqiian	6.81	7.10	7.49	7.72	6.81	6.96	10.40	10.66	8.77	10.74
Oats.										
Winnipeg: No. 2 White	5.63	5.70	5.90	5.60	5.54	5.60	10.32	11.11	8.20	10.78
Chicago: No. 2 White	6.80	6.75	6.88	6.62	5.90	5.69	7.01	10.73	6.34	9.25
Buenos Aires: No. 2 White	4.36	4.18	4.34	4.58	5.10	5.34	6.90	6.67	6.01	6.41
Berlin: Home-grown	21.98	21.86	21.74	21.61	21.49	21.37	21.49	20.99	21.24	20.74
Paris: Home-grown	8.08	8.32	8.25	7.64	7.83	8.40	11.72	16.80	10.52	15.24
London and Liverpool (c. i. f.): Plata	5.82	5.88	6.13	6.31	6.75	6.79	8.41	8.64	7.61	8.82

(1) The gold franc adopted is that of the former Latin Monetary Union. Original prices have been converted into American dollars, and multiplied by 3.067, which is the coefficient existing between the current dollar and the former franc of the Latin Monetary Union. In cases where the difference between the rates of exchange of the national currency considered, and parity with the dollar did not, during a given month, reach $2\frac{1}{2}\%$, the monthly average has been converted on the basis of parity. In other cases the average rate of exchange for the month has been utilized. — (2) Before August 1937: "Barusso". —

(3) Calculated on the basis of the relation between the korona and the Reichsmark.

DESCRIPTION	March	Feb.	Jan.	Dec.	Nov.	Oct.	March	March	Year	
	1939*	1939	1939	1938	1938	1938	1938	1937	1938	1937
Maize.										
Braila: Home-grown	8.37	8.77	9.26	8.64	6.94	6.84	6.63	6.48	* 7.50	* 6.97
Chicago: No. 3 Yellow	5.72	5.83	6.22	6.16	5.47	5.57	6.97	13.77	6.58	12.39
Buenos Aires: Yellow Plata	6.38	6.31	7.05	6.94	5.77	6.03	9.48	6.75	7.77	6.87
Liverpool and London (c. i. f.):										
Yellow Plata	8.08	8.24	8.90	8.66	7.58	7.75	9.86	8.75	9.40	9.18
No. 2 White African	n. q.	8.29	8.76	n. q.	n. q.	n. q.	10.04	n. q.	n. q.	* 9.49
Milano: Home-grown	14.49	14.49	14.49	14.49	14.49	14.49	13.02	13.21	14.10	13.32
Rice.										
Milano: Originario	26.25	26.25	26.25	26.12	26.65	26.65	24.56	20.65	25.59	21.98
Rangoon: No. 2 Europe (Burma)	7.25	6.67	6.61	6.72	8.33	9.05	7.99	8.54	8.41	8.83
Saigon: No. 1 Round white	7.63	7.43	6.91	7.01	8.52	9.58	9.63	8.95	9.34	9.54
London (c. i. f.):										
No. 2 Burma	10.41	9.94	9.79	9.87	10.21	13.01	11.57	13.00	12.19	13.72
No. 1 Saigon	10.26	10.00	9.61	9.17	10.06	12.92	13.07	13.00	12.47	13.75
Tokyo: Tyumai	20.11	20.09	19.99	20.13	19.79	20.00	20.50	18.87	20.40	19.52
Cotton.										
New Orleans: Middling	58.71	58.04	58.78	57.29	58.78	57.97	60.80	95.29	58.99	76.31
Bombay (futures): Broach, f.g.	46.19	45.35	47.11	47.66	47.88	47.26	55.07	76.13	50.05	65.94
Alexandria: Sakellaridis, f.g.f.	79.94	80.02	79.93	83.08	92.02	92.82	94.79	146.67	90.38	124.34
Liverpool:										
Middling American	68.62	67.59	68.14	67.57	67.85	69.13	70.90	108.07	67.84	88.48
Broach, f.g.	n. 50.85	n. 52.12	n. 51.96	n. 52.08	n. 51.44	n. 56.75	n. 82.53	n. 82.53	n. 82.53	n. 82.53
Sakellaridis, f.g.f.	91.68	93.01	95.97	100.90	110.66	110.79	117.56	161.49	109.98	136.86
Beef.										
Berlin: Home-grown (live weight)	104.97	104.97	107.20	107.69	109.91	108.93	101.27	101.27	104.81	103.92
Paris: Home-grown (dead weight)	80.57	79.21	81.25	80.29	80.24	82.45	108.05	129.06	90.87	119.65
London: Home-grown (dead weight)	92.20	93.04	94.35	92.66	91.10	92.51	107.71	89.25	104.77	103.99
Mutton.										
Paris: Home-grown (dead weight)	159.77	157.04	160.41	154.46	150.46	149.24	167.01	217.83	152.56	194.24
London: Home-grown (dead weight)	107.42	98.80	98.46	91.02	86.14	89.58	109.46	141.60	99.31	133.21
Pork.										
Denmark: Home-grown (dead weight) . . .	114.43	112.65	108.44	105.83	104.31	112.28	122.29	107.77	117.30	115.20
Rotterdam: Home-grown (live weight) . .	76.38	77.13	79.59	83.18	84.86	88.23	93.52	78.68	90.30	89.76
Berlin: Home-grown (live weight)	123.50	123.50	123.50	124.73	124.73	124.73	123.50	121.03	125.56	124.77
Paris: Home-grown (live weight)	72.87	72.57	74.23	78.44	79.19	77.64	80.82	86.94	78.13	83.90
London: Home-grown (dead weight)	118.54	118.15	117.33	116.44	115.95	114.70	122.16	111.56	117.28	117.04
Bacon.										
London:										
English, No. 1, lean sizable	141.13	141.16	137.15	137.77	127.44	136.71	153.13	135.36	146.00	140.67
Danish No. 1, sizable	142.78	141.16	137.15	136.60	127.09	139.23	153.51	132.42	146.28	140.15

DESCRIPTION	March	Feb.	Jan.	Dec.	Nov.	Oct.	March	March	Year	
	1939	1939	1939	1938	1938	1938	1937	1936	1938	1937
Butter.										
Köbenhavn: Danish	158.85	169.62	161.87	165.75	159.21	150.04	143.67	146.48	153.83	151.84
Leeuwarden: Dutch	130.02	140.71	139.70	138.09	126.04	123.61	137.73	113.41	135.22	130.90
Germany: Butter with National mark. .	338.39	338.39	338.39	338.39	338.39	333.82	328.51	328.51	330.60	328.51
London:										
Danish	185.00	206.09	198.69	202.55	196.31	186.95	183.91	185.75	191.35	189.35
Argentine	156.89	161.04	161.41	141.99	134.90	n. a.	n. a.	133.15	* 148.98	* 139.78
Australian, salted	162.18	166.68	168.21	150.42	146.97	158.60	175.28	141.61	169.20	163.38
New Zealand, salted	164.42	171.15	171.96	153.82	153.47	164.34	175.65	141.37	172.59	164.51
Cheese.										
Milano: Parmigiano-Reggiano	191.64	190.43	188.82	186.81	185.20	202.91	185.20	138.29	191.77	155.26
Alkmaar: Edam 40 +	59.00	65.44	66.53	68.54	75.08	78.05	75.46	62.97	71.84	66.48
Kempten: Emmenthal	197.60	197.60	197.60	197.60	197.60	197.60	197.60	197.60	197.60	197.60
London:										
English Cheddar	129.25	128.45	127.30	127.69	126.73	127.38	145.63	129.11	* 135.31	* 133.27
Canadian	102.32	103.04	102.10	100.51	102.12	103.82	114.60	106.43	110.93	109.55
New Zealand	86.09	93.05	97.41	97.23	97.39	102.51	103.34	88.52	102.32	99.11
Eggs (per 100).										
Denmark: Danish, for export (per quintal)	48.32	56.65	72.47	79.69	94.33	97.90	50.05	60.86	77.72	73.92
Roermond: Dutch, for export	5.49	5.56	6.65	7.05	7.27	7.49	4.45	6.14	6.14	6.11
Warszawa: Polish, average quality . . .	3.73	4.53	6.43	6.42	5.59	4.98	3.52	4.46	4.83	4.72
Berlin: German, marked "GIB"	12.25	12.97	14.96	15.44	14.05	12.66	12.66	12.35	13.00	11.83
London:										
English	6.76	8.13	11.44	13.19	14.65	14.52	7.43	7.97	11.04	10.88
Danish	5.60	6.01	7.44	8.83	9.52	9.39	5.65	6.90	7.84	7.71
Dutch	6.61	6.98	8.71	10.17	10.63	10.19	7.12	7.63	8.89	8.90

EXCHANGE RATES

RELATION OF VARIOUS CURRENCIES TO THEIR PARITY WITH THE U. S. DOLLAR ⁽¹⁾

NATIONAL CURRENCIES	Parity	Actual Exchange Rates				Percentage deviation from parity with U.S. dollar: premium (+) or discount (—)			
		April 14 1939	April 6 1939	March 31 1939	March 24 1939	April 14 1939	April 6 1939	March 31 1939	March 24 1939
Germany: reichsmark	40.332	40.050	40.096	40.100	40.053	— 0.7	— 0.6	— 0.6	— 0.7
Argentina: paper peso	71.959	n.31.205	n.31.206	n.31.204	n.31.221	— 56.6	— 56.6	— 56.6	— 56.6
Belgium: belga	23.542	16.812	16.821	16.823	16.820	— 28.6	— 28.5	— 28.5	— 28.6
Canada: dollar	16.950	16.950	16.950	16.950	16.950	— 0.8	— 0.8	— 0.8	— 0.8
Denmark: crown	100.000	99.389	99.471	99.535	99.549	— 0.6	— 0.5	— 0.5	— 0.5
Spain: peseta	45.374	20.889	20.891	20.890	20.899	— 54.0	— 54.0	— 54.0	— 53.9
France: franc ^(*)	32.669	11.130	11.130	11.130	11.130	— 65.9	— 65.9	— 65.9	— 65.9
Great Britain: £ sterling ^(*)	6.633	2.647	2.647	2.648	2.648	— 60.1	— 60.1	— 60.1	— 60.1
Hungary: pengő	8.2397	4.6799	4.6806	4.6801	4.6820	— 43.2	— 43.2	— 43.2	— 43.2
India: rupee	29.612	n.19.600	n.19.600	n.19.600	n.19.612	— 33.8	— 33.8	— 33.8	— 33.8
Italy: lira	61.798	34.948	34.960	34.987	35.030	— 43.4	— 43.4	— 43.4	— 43.3
Japan: yen	8.911	5.260	5.260	5.260	5.260	— 41.0	— 41.0	— 41.0	— 41.0
Netherlands: florin	5.263	5.260	5.260	5.260	5.260	— 0.1	— 0.1	— 0.1	— 0.1
Poland: zloty	84.396	27.266	27.280	27.273	27.285	— 67.7	— 67.7	— 67.7	— 67.7
Romania: leu	68.057	53.075	53.080	53.079	53.081	— 22.0	— 22.0	— 22.0	— 22.0
Sweden: crown	18.994	18.817	18.832	18.847	18.845	— 0.9	— 0.9	— 0.8	— 0.8
Switzerland: franc	1.013	n. 0.706	n. 0.706	n. 0.701	n. 0.689	— 30.3	— 30.3	— 30.8	— 32.0
	45.374	24.111	24.122	24.119	24.132	— 46.9	— 46.8	— 46.8	— 46.8
	32.669	22.417	22.415	22.422	22.509	— 31.4	— 31.4	— 31.4	— 31.1

⁽¹⁾ Parities and current rates are both expressed in U. S. cents (the £ sterling is expressed in dollars). The dollar contains 0.88867 grams of fine gold, i. e. 40.94 % less than formerly. — ⁽²⁾ Former parity. — ⁽³⁾ New parity as from 31 March 1935. — ⁽⁴⁾ 1 Indochinese piastre = 10 francs; the actual rates vary only slightly from this. — ⁽⁵⁾ 97 ½ Egyptian piastres = 1 £ sterling (fixed rate). — ⁽⁶⁾ New parity as from Oct. 5, 1936. — ⁽⁷⁾ Unofficial rate.

**INDEX-NUMBERS OF PRICES OF AGRICULTURAL PRODUCTS
AND OF COMMODITIES BOUGHT BY THE FARMER**

DESCRIPTION	March	Feb.	Jan.	Dec.	Nov.	Oct.	March	March	YEAR	
	1939	1939	1939	1938	1938	1938	1938	1937	1937-38 (¹)	1936-37 (¹)
Germany										
(Statistisches Reichsamt; products sold by farmers)										
Average for corresponding months 1909-10/1913-14 = 100.										
Cereals	113	113	112	112	111	109	110	107	110	105
Edible potatoes	114	106	110	111	108	108	104	114	114	115
Plant products	114	112	112	112	111	109	110	108	111	107
Meat animals	97	97	95	95	94	92	95	93	95	94
Livestock products (butter and eggs) . .	107	107	109	108	106	104	104	104	109	108
Livestock and livestock products . .	100	100	100	99	97	96	98	97	99	99
Total agricultural products	103	103	103	103	102	100	101	100	102	101
Germany										
(Statistisches Reichsamt; wholesale products) 1913 = 100.										
									1938	1937
Foodstuffs of plant origin	118.0	116.9	116.1	115.2	114.7	114.2	116.8	114.6	115.9	115.0
Livestock	90.3	90.2	90.0	90.4	90.5	89.9	86.8	84.8	88.6	87.2
Livestock products	114.0	115.2	117.4	115.8	115.2	112.5	111.6	111.2	112.9	110.9
Feedingstuffs	108.9	108.8	108.5	108.2	107.3	106.8	107.7	106.7	107.2	106.0
Total agricultural products	107.8	107.6	107.8	107.2	106.8	105.7	105.6	103.9	105.9	104.6
Fertilizers	57.3	57.3	56.5	55.1	53.4	54.5	57.6	61.9	55.3	57.0
Agricultural dead stock	110.8	110.7	110.7	110.8	110.9	110.9	112.1	112.7	111.3	112.7
Consumption goods (¹)	135.4	135.0	135.0	135.1	135.0	135.1	135.7	131.4	135.4	133.3
Wholesale products in general	106.6	106.5	106.5	106.3	106.1	105.7	105.8	106.1	105.7	105.9
England and Wales (²)										
(Ministry of Agriculture and Fisheries) Average 1927-1929 = 100.										
A: UNCORRECTED FOR SEASONAL VARIATION										
Cereals and farm crops	84	79	79	76	75	77	88	108	86.5	98.5
Livestock and livestock products . . .	92	96	99	98	98	93	91	89	88	88
Total agricultural products	90	93	95	94	94	91	91	92	90	90.5
Wholesale products in general (³) . .	82.8	83.0	83.3	84.2	84.3	84.9	89.2	91.9	86.9	93.1
B: CORRECTED FOR SEASONAL VARIATION										
Cereals and farm crops	85	80	80	77	75	75	90	110	—	—
Livestock and livestock products . . .	92	89	90	88	89	88	91	89	—	—
Total agricultural products	90	88	89	86	86	86	91	92	—	—

(¹) Household goods of all kinds, and clothing. — (²) Index-numbers taking account by payments under the Wheat Act the Cattle Subsidy Act, and Government payments for milk. — (³) Index-numbers by the Board of Trade, reduced to, 1927-1929=100. — (⁴) Agricultural year: July 1-June 30.

DESCRIPTION	March	Feb.	Jan.	Dec.	Nov.	Oct.	March	March	YEAR	
	1939	1939	1939	1938	1938	1938	1938	1937	1938	1937
Argentina										
(Banco Central de la Republica Argentina) 1926 = 100.										
Cereals and linseed	78.1	72.4	77.4	77.2	70.9	73.2	107.3	99.7	90.6	101.3
Meat	90.7	90.0	85.4	85.7	88.0	88.3	95.3	82.8	94.8	93.6
Hides and skins	84.3	81.8	86.6	87.9	88.0	93.2	85.3	137.0	81.9	118.6
Wool	85.5	84.5	86.8	84.9	88.9	87.6	92.2	156.8	92.5	143.7
Dairy products	78.2	78.2	74.0	63.1	67.5	73.6	96.9	86.8	83.9	93.7
Forest products	101.6	101.6	101.6	100.5	100.9	100.6	100.6	97.3	100.0	98.6
Total agricultural products	81.3	77.1	80.4	80.1	76.6	78.8	102.1	105.0	90.6	105.1
Non agricultural commodities	109.0	109.2	109.2	109.1	108.1	108.0	111.1	112.1	109.4	114.4
Wholesale products in general	103.2	102.4	103.1	103.0	101.5	101.8	109.4	110.8	105.5	112.6
Australia (Commonwealth)										
(Commonwealth Bureau of Census and Statistics) 1928-29 = 100.										
Agricultural field products	77.5	80.2	78.4	78.1	79.8	84.0	86.9	...	91.4	94.9
Pastoral products	74.6	66.5	65.8	66.6	69.5	73.0	70.5	...	78.6	85.7
Farmyard and dairy products	89.1	89.3	87.7	87.4	87.5	87.5	80.3	...	81.1	87.1
Total agricultural products	78.3	75.4	74.2	74.4	76.4	79.9	77.9	...	83.4	87.0
Belgium										
(Belgische Boerenbond — Boerenbond belge) Average of corresponding months 1909-1914 = 100.										
Field products . . . . .	...	480	504	489	487	485	564	562	541	577
Livestock products . . . . .	...	644	687	719	725	734	635	586	689	617
Total agricultural products . . . . .	...	592	629	646	650	656	612	578	643	604
Rent . . . . .	...	650	650	650	650	650	650	645	650	647
Agricultural wages . . . . .	...	900	900	900	900	900	870	840	887	851
Fertilizers . . . . .	...	475	471	478	476	473	467	434	471	443
Feedingstuffs . . . . .	...	547	585	574	540	565	662	594	631	610
Total production expenses (including those not specified) . . . . .	...	752	759	751	744	748	758	728	757	736
Bohemia										
(Institute for Farm Accounting and Agricultural Economics) 1913-14 = 100										
A: SUGARBET REGION										
Plant products . . . . .	...	636	619	591	567	563	591	565	584	576
Livestock products . . . . .	...	559	562	575	577	562	496	542	531	550
Total agricultural products . . . . .	...	604	595	584	571	563	552	556	562	565
Total production expenses . . . . .	...	826	818	805	806	802	800	777	801	783
B: NON-SUGARBET REGION										
Plant products . . . . .	...	683	677	668	658	656	654	605	656	623
Livestock products . . . . .	...	545	553	556	553	551	474	539	504	539
Total agricultural products . . . . .	...	600	603	601	595	593	545	565	565	572
Total production expenses . . . . .	...	843	833	819	819	809	809	794	811	796

(*) July 1-June 30.

DESCRIPTION	March	Feb.	Jan.	Dec.	Nov.	Oct.	March	March	YEAR	
	1939	1939	1939	1938	1938	1938	1938	1937	1938	1937
Canada										
(Dominion Bureau of Statistics, Internal Trade Branch) 1926 = 100.										
Field products (grain, etc.)	54.9	54.7	54.7	53.8	54.6	53.6	83.8	93.4	69.0	88.3
Livestock and livestock products . . .	82.1	81.5	81.7	82.8	82.1	81.0	81.7	84.2	81.3	85.0
<i>Total Canadian farm products</i> . . .	65.1	64.7	64.8	64.6	64.9	63.8	83.0	90.0	73.6	87.1
Fertilizers	83.4	83.0	82.8	82.8	82.8	82.8	75.2	74.2	78.9	74.5
Consumers' goods (other than foodstuffs, beverages and tobacco)	75.4	76.1	76.2	76.7	76.7	76.8	77.6	77.5	77.2	78.4
<i>Wholesale products in general</i> . . .	73.2	73.2	73.3	73.3	73.5	74.1	83.1	85.5	78.3	84.6
Chili										
(Dirección General de Estadística) 1913 = 100										
Cereals	461.5	560.6	603.8	539.3	563.9	551.0	572.3
Other plant products	359.0	373.9	362.6	358.8	336.2	375.4	375.3
Meat animals	529.4	369.7	380.4	383.2	356.4	380.3	381.2
Meat	283.9	317.6	345.0	312.2	279.3	324.7	316.2
<i>Total agricultural products</i>	379.9	424.7	435.9	411.5	401.8	424.3	430.0
Domestic industrial products	460.1	473.9	478.1	471.9	493.4	472.5	489.4
<i>Wholesale products in general</i>	489.9	508.7	513.6	507.4	511.2	510.7	522.6
United States										
(Bureau of Agricultural Economics) Average 1909-10 to 1913-14 = 100.										
A: UNCORRECTED FOR SEASONAL VARIATION										
Cereals	66	66	63	60	60	85	145	74	126
Cotton and cottonseed	70	71	70	73	72	70	116	70	95
Fruits	78	76	73	71	70	69	133	73	122
Truck crops (market garden crops)	108	96	108	98	108	107	145	105	123
Meat animals	116	112	109	111	111	117	129	114	132
Dairy products	107	109	112	109	107	117	125	109	124
Chickens and eggs	91	97	127	131	124	93	102	108	111
Miscellaneous	92	109	108	95	107	89	140	95	130
<i>Total agricultural products</i>	92	94	96	94	95	96	128	95	121
Commodities bought for use in living and production (¹)	120	120	120	121	121	125	132	123	130
Agricultural wages (¹)	—	117	—	—	118	¹) 115	¹) 112	116	120
B: CORRECTED FOR SEASONAL VARIATION										
Cereals	65	67	64	62	62	83	143	—	—
Cotton and cottonseed	72	73	74	74	73	71	117	—	—
Fruits	82	83	81	81	76	72	136	—	—
Truck crops (market garden crops)	108	96	108	102	107	101	131	—	—
Meat animals	117	116	116	116	111	114	125	—	—
Dairy products	104	105	107	105	106	115	123	—	—
Chickens and eggs	90	86	98	103	110	112	125	—	—
Miscellaneous	98	109	107	90	103	94	147	—	—
<i>Total agricultural products</i>	93	95	96	93	94	98	130	—	—

(¹) 1910-1914 = 100. — (²) April.

DESCRIPTION	March	Feb.	Jan.	Dec.	Nov.	Oct.	March	March	YEAR	
	1939	1939	1939	1938	1938	1938	1938	1937	1938	1937
United States										
(Bureau of Labor) 1926 = 100.										
Cereals	54.5	54.7	56.3	54.4	50.9	50.3	69.0	113.2	60.7	98.3
Livestock and poultry	78.2	79.2	78.0	74.4	75.2	76.2	82.7	93.7	79.0	95.5
Other farm products	61.0	62.9	63.2	66.5	67.4	65.0	62.8	88.5	64.0	77.2
Total agricultural products	65.8	67.2	67.2	67.6	67.8	66.8	70.3	94.1	68.6	86.4
Agricultural implements	93.2	93.2	93.4	93.5	93.7	95.4	96.2	93.1	95.6	94.0
Fertilizer materials	69.7	69.3	...	68.6	67.7	67.5	71.8	70.3	69.2	71.2
Mixed fertilizers	73.8	73.7	74.8	73.8	73.2	73.4	71.6	71.7	72.2	73.2
Cattle feed	84.1	78.2	79.9	76.6	70.5	66.5	85.1	135.0	77.0	111.5
Non-agricultural commodities	79.0	78.9	78.0	79.0	79.5	79.9	81.6	86.3	80.6	86.2
Wholesale products in general.	76.7	76.9	76.9	77.0	77.5	77.6	79.7	87.8	78.6	86.3
Finland										
(Central Bureau of Statistics) 1935 = 100.										
Agricultural products	115	119	118	120	119	117	115	117	117	115
Forestry products	145	140	145	146	141	132	155	148	145	165
Fledingstuffs	129	133	123	121	119	122	134	132	129	133
Fertilizers	109	107	107	105	105	105	114	108	109	109
Wholesale products in general.	113	113	113	113	112	111	116	120	114	122
Hungary										
(Central Royal Bureau of Statistics) 1913 = 100.										
Agricultural and livestock products. . . . .	...	83	83	84	83	87	82	80	—	—
Wholesale products in general. . . . .	...	94	94	95	94	97	94	95	—	—
Ireland										
(Department of Industry and Commerce) Average 1911-1913 = 100.										
Agricultural products in general. . . . .	...	109.4	109.6	113.0	113.9	116.3	108.3	98.6	111.9	104.9
Italy										
(Istituto Centrale di Statistica) 1928 = 100.										
Plant products . . . . .	...	...	...	89.3	89.9	91.3	83.9	77.5	88.6	79.7
Livestock products . . . . .	...	...	...	86.3	87.9	87.8	86.5	81.6	86.7	91.1
Total agricultural products . . . . .	...	...	...	88.2	89.0	90.0	84.4	78.6	87.8	82.8
Feedingstuffs . . . . .	...	...	...	102.3	105.1	99.8	97.0	82.7	99.6	83.6
Fertilizers, and chemicals for plant diseases . . . . .	...	...	...	100.0	99.7	99.4	101.2	89.9	100.7	94.2
Wholesale products in general.	97.6	97.2	97.1	96.4	97.2	96.9	93.8	85.1	95.3	89.1

DESCRIPTION	March	Feb.	Jan.	Dec.	Nov.	Oct.	March	March	YEAR	
	1939	1939	1939	1938	1938	1938	1938	1937	1938	1937
Lithuania										
(Lietuvos Bankas)										
1926-1929 = 100.										
Cereals . . . . .	...	39	39	39	38	38	43	47	41	46
Cattle, fowls . . . . .	...	53	52	53	52	53	50	47	51	49
Leather, hides, wool . . . . .	...	54	54	53	52	51	51	61	51	60
Meat, dairy products and eggs . . . . .	...	49	51	51	49	47	46	44	47	44
Total agricultural products . . . . .	...	46	47	47	46	45	46	47	46	47
Wholesale products in general . . . . .	...	51	52	52	51	51	51	51	51	51
Norway										
(Kgl. Selskap for Norges Vel)										
Average 1909-1914 = 100.										
Cereals	163	166	167	167	167	167	175	169	173	154
Potatoes	141	147	150	134	130	121	210	153	188	132
Pork	116	125	133	133	133	135	113	107	117	110
Other meat	169	166	162	171	165	167	193	155	187	148
Dairy products	179	179	179	179	177	175	173	151	165	139
Eggs	99	99	114	143	153	162	110	122	124	113
Concentrated feedingstuffs	155	154	155	157	161	161	152	143	152	130
Maize	160	159	162	158	155	156	153	132	149	130
Fertilizers	94	94	93	92	89	100	103	89	95	87
New Zealand										
(Census and Statistics Office)										
Average 1909-1913 = 100.										
Dairy products	123.9	124.9	115.9	114.2	121.2	131.7	110.9	90.4	121.0	109.2
Meat	167.2	170.7	175.0	177.8	181.9	169.0	177.9	162.7	175.2	165.1
Wool	110.4	108.9	114.3	117.8	114.2	98.7	117.0	175.2	117.6	176.8
Other pastoral products	85.0	92.5	90.0	90.6	89.2	93.8	119.1	147.0	94.7	153.5
All pastoral and dairy products	129.8	131.4	130.2	131.7	134.9	132.5	132.1	132.6	134.0	142.3
Field products	153.4	145.1	136.0	136.3	135.9	142.3	133.3	140.4	139.6	136.5
Total agricultural products	130.4	131.7	130.3	131.8	135.0	132.8	132.1	132.8	134.2	142.2
Poland										
(Central Bureau of Statistics)										
1928 = 100.										
Raw plant products	37.6	36.4	36.2	36.3	35.3	35.7	46.1	54.7	43.6	53.4
Meat animals	44.4	44.0	42.3	42.4	40.9	44.4	39.4	43.3	42.1	43.5
Dairy products and eggs	47.1	49.3	50.6	52.1	53.1	48.6	50.8	49.3	47.6	48.2
Products directly sold by farmers	41.6	41.3	40.9	41.2	40.5	41.0	44.8	50.0	43.8	49.2
Flour and groats	43.4	43.7	44.2	44.7	43.7	43.7	50.3	59.4	49.1	55.9
Meat and lard-fat	48.4	47.8	48.1	47.4	46.6	48.9	46.3	47.9	48.3	48.1
Sugar, alcohol, beer	71.3	71.3	71.3	71.3	71.3	71.3	71.3	71.3	71.3	71.3
Products of agricultural industries	54.3	54.1	54.4	54.4	53.8	54.6	55.8	59.3	56.1	58.3
Total agricultural products	47.8	47.6	47.6	47.7	47.0	47.7	50.2	54.6	49.9	53.7
Commodities bought by farmers	64.9	64.7	64.5	64.4	64.3	64.5	65.5	66.4	65.0	62.1
Wholesale products in general	55.1	55.0	54.9	55.0	54.6	54.8	56.9	60.6	56.2	59.4

(2) Agricultural year: April 1-March 31.

DESCRIPTION	March	Feb.	Jan.	Dec.	Nov.	Oct.	March	March	YEAR	
	1939	1939	1939	1938	1938	1938	1938	1937	1937-38 (²)	1936-37 (²)
Netherlands										
(Bureau of Agriculture)										
Average 1924-25 to 1928-29 = 100.										
Plant products	59	59	59	57	56	56	60	60	63	58
Livestock products	64	60	61	62	61	63	65	62	66	57
Total agricultural products	63	60	61	61	60	62	64	61	65	57
Wholesale products in general (¹) . .	69.8	69.9	70.2	70.6	70.2	70.9	73.2	76.0	³) 71.9	³) 76.2
Agricultural wages	74	74	74	74	74	74	68	68	69	68
Sweden										
(Sveriges Allmänna Lantbrukssällskap)										
Average 1909-1913 = 100.									1938	1937
Plant products	104	105	104	102	103	105	123	126	115	123
Meat animals	142	142	141	132	130	132	126	120	133	126
Dairy products	161	163	162	163	156	143	143	136	142	134
Livestock and livestock products . .	154	156	156	155	149	141	138	132	139	132
Total agricultural products	138	139	139	137	134	129	133	130	131	129
Feedingstuffs	141	144	144	143	142	146	139	139	140	139
Fertilizers	94	94	94	93	94	94	97	94	96	94
Building materials	187	180	180	180	180	180	187	191	182	191
Machinery and implements	204	204	204	204	204	204	225	196	218	203
Sundries	120	120	120	119	120	121	129	123	124	127
Total commodities purchased	144	144	144	143	143	145	148	143	146	145
Wholesale products in general . . .	134	134	134	134	134	134	140	144	137	145
Agricultural wages . . . . .	...	...	...	...	...	³) 204	204	193	³) 204	194
Switzerland										
(Schweizerischer Bauernverband)										
1914 = 100.										
Slaughter cattle . . . . .	...	107	109	110	115	115	120	119	117	122
Slaughter pigs . . . . .	...	124	127	127	127	126	127	130	125	127
Milk (base price) . . . . .	...	121	121	121	121	121	119	119	120	118
Total agricultural products	117	117	119	120	121	119	122	122	126	125
Feedingstuffs (²)	111	109	108	108	106	106	99	101	105	97
Fertilizers (²)	101	100	100	102	102	99	91	86	96	85
Wholesale products in general (²) . .	105.3	105.2	105.7	106.1	106.1	105.8	108.2	113.3	107.1	111.2
Yugoslavia										
(National Bank of the Kingdom of Yugoslavia)										
1926 = 100.										
Plant products	85.3	85.8	86.9	85.2	81.6	84.4	84.4	67.8	85.8	74.1
Livestock products	63.1	61.9	64.1	65.7	67.2	65.6	65.6	64.3	65.8	65.1
Industrial products	76.6	76.5	76.6	76.7	75.9	75.9	79.5	75.4	78.2	77.6
Wholesale products in general . . .	76.9	76.6	77.5	77.5	76.7	76.8	78.6	72.1	78.3	74.7

(¹) Index numbers calculated by the Central Statistical Bureau of the Netherlands; base 1926-1930. — (²) Index numbers calculated by the Bundesamt für Industrie, Gewerbe und Arbeit; base July 1914. — (³) Agricultural year: July 1 - June 30. — (⁴) Calendar years 1938 and 1937 respectively. — (⁵) Provisional data.

VARIATIONS IN THE INDEX-NUMBERS OF PRICES

The index-numbers of prices of agricultural and other products of interest to the farmer, as published by the various countries, are often very heterogeneous and consequently great care has to be taken in drawing conclusions from the supplementary information given in the following comparative summary table.

COUNTRIES	Percentage variations in the index-numbers of prices of			
	agricultural products	all products	agricultural products	all products
	March 1939 in comparison with			
	February 1939		March 1938	
Germany (products sold by farmers)	0.0	—	+ 2.0	—
Germany (wholesale prices)	+ 0.2	+ 0.1	+ 2.1	+ 0.8
England and Wales (a)	— 3.2	— 0.2	— 1.1	— 7.2
England and Wales (b)	+ 2.3	—	— 1.1	—
Argentina	+ 5.4	+ 0.8	— 20.4	— 5.7
Australia	+ 3.8	—	+ 0.5	—
Canada	+ 0.6	0.0	— 21.6	— 11.9
United states: Bureau of Labour	— 2.1	— 0.3	— 6.4	— 3.8
Finland	— 3.4	0.0	— 0.0	— 2.6
New Zealand	— 1.0	—	— 1.3	—
Netherlands	+ 5.0	— 0.1	— 1.6	— 4.6
Poland	+ 0.4	+ 0.2	— 4.8	— 3.2
Sweden	— 0.7	0.0	+ 3.8	— 4.3
Switzerland	0.0	+ 0.1	— 4.1	— 2.7
Yugoslavia } vegetable products	— 0.6	+ 0.4	+ 1.1	—
} animal products	+ 1.9		— 3.8	— 2.2

(a) Not corrected for seasonal variation. — (b) Corrected for seasonal variation.

LATEST INFORMATION

TRADE

Statistics received too late for inclusion in the tables and statistics for March already available.

COUNTRIES PRODUCTS AND UNITS	EXPORTS		IMPORTS		COUNTRIES PRODUCTS AND UNITS	EXPORTS		IMPORTS	
	1938	1937	1938	1937		1939	1938	1939	1938
FORMOSA					IRAN				
	Dec.	Dec.	Dec.	Dec.		Feb.	Feb.	Feb.	Feb.
Wheat 1000 centals	—	—	0	0	Wheat 1000 centals	0	0	0	0
Rice " "	3	1	0	0	Wheat flour " "	0	0	0	0
Cotton " "	—	—	0	1	Barley " "	4	12	0	0
Tea 1000 lb.	2,253	1,082	0	0	Rice " "	0	164	2	1
	1939	1938	1939	1938	Cotton " "	10	62	0	0
IRAN					Wool 1000 lb.	529	483	0	0
	Jan.	Jan.	Jan.	Jan.	Butter " "	0	0	18	0
Wheat 1000 centals	0	0	0	0	Cheese " "	0	0	0	0
Wheat flour " "	0	0	0	0	Cacao " "	—	—	11	0
Barley " "	7	25	0	0	Tea " "	0	0	1,435	2,663
Rice " "	0	82	1	0	Coffee " "	0	0	84	49
Cotton " "	4	55	0	0	NEW ZEALAND				
Wool 1000 lb.	761	1,863	0	0					
Butter " "	0	0	20	0	Wheat 1000 centals	0	0	384	312
Cheese " "	0	0	0	0	Wheat flour " "	0	0	0	0
Cacao " "	—	—	22	0	Barley " "	0	0	8	24
Tea " "	0	0	1,788	944	Oats " "	0	0	0	1
Coffee " "	0	0	22	75	Maize " "	0	0	0	0
GREECE					Rice " "	0	0	7	9
	Feb.	Feb.	Feb.	Feb.	Linseed " "	0	0	0	0
Wheat 1000 centals	0	0	284	1,087	Cotton " "	0	0	0	0
Wheat flour " "	0	0	3	2	Wool { (a) 1000 lb.	38,482	39,101	0	13
Rye " "	0	0	0	0	(b) " "	4,123	2,253	0	0
Barley " "	0	0	92	2	Butter " "	22,146	23,420	0	0
Oats " "	0	0	0	0	Cheese " "	15,704	9,460	0	0
Maize " "	0	0	109	7	Cacao " "	0	0	820	1,182
Rice " "	0	0	68	64	Tea " "	2	11	1,014	869
Linseed " "	0	0	2	1	Coffee " "	0	0	40	35
Cotton " "	0	0	4	8	GERMANY				
Wool 1000 lb.	49	104	357	93		March	March	March	March
Butter " "	0	0	90	75	Wheat 1000 centals	...	...	1,192	1,776
Cheese " "	4	18	351	126	Wheat flour . . . . . " "	...	...	233	92
Cacao " "	—	—	192	225	Rye . . . . . " "	...	...	555	192
Tea " "	—	—	24	35	Barley . . . . . " "	...	...	729	932
Coffee " "	—	—	666	778	Oats . . . . . " "	...	...	104	1,146
JAMAICA					Butter 1000 lb.	...	...	15,441	13,565
					Cheese . . . . . " "	...	...	6,687	6,230
Coffee 1000 lb.	560	725	—	—	ESTONIA				
INDOCHINA									
					Wheat 1000 centals	0	0	0	11
Wheat 1000 centals	0	0	1	0	Wheat flour " "	0	0	0	0
Wheat flour " "	0	0	6	30	Rye " "	0	0	0	0
Barley " "	0	0	0	0	Barley " "	0	0	0	30
Oats " "	0	0	0	0	Oats " "	0	0	0	6
Maize " "	222	339	—	—	Maize " "	0	0	0	0
Rice " "	2,990	2,452	7	21	Rice " "	0	0	1	1
Cotton " "	0	1	48	32	Linseed " "	0	0	0	0
Butter 1000 lb.	0	0	37	64	Cotton " "	0	1	0	10
Cheese " "	0	0	53	24	Wool 1000 lb.	0	0	93	68
Tea " "	311	238	77	31	Butter " "	2,039	1,742	0	0
Coffee " "	106	51	22	7	Cheese " "	42	40	0	0
					Cacao " "	—	—	157	77
					Tea " "	—	—	11	7
					Coffee " "	—	—	29	29

(a) Wool, greasy. — (b) Wool, scoured.

COUNTRIES PRODUCTS AND UNITS	EXPORTS		IMPORTS		COUNTRIES PRODUCTS AND UNITS	EXPORTS		IMPORTS	
	1939	1938	1939	1938		1939	1938	1939	1938
FINLAND					NETHERLANDS				
Wheat 1000 centals	0	0	23	74	Wheat 1000 centals	0	0	1,540	1,246
Wheat flour "	0	0	27	43	Wheat flour "	0	3	189	139
Rye "	0	0	2	117	Rye "	26	71	156	35
Barley "	0	0	0	0	Barley "	44	34	318	446
Oats "	0	0	0	16	Oats "	59	36	95	232
Maize "	0	0	26	162	Maize "	0	1	1,498	1,556
Rice "	0	0	16	18	Rice "	179	200	345	88
Linseed "	0	0	24	13	Linseed "	50	33	369	502
Cotton "	0	0	29	15	Cotton "	1	4	118	96
Wool 1000 lb.	4	9	604	492	Wool { (a) 1000 lb.	313	97	1,139	738
Butter "	3,325	3,611	0	4	Butter { (b) "	22	93	926	891
Cheese "	1,129	1,067	0	0	Butter "	9,877	7,917	0	53
Cacao "	—	—	68	33	Cheese "	10,688	10,959	71	2
Tea "	—	—	31	22	Cacao "	49	459	21,508	22,988
Coffee "	—	—	4,658	4,475	Tea "	22	15	2,610	2,399
					Coffee "	1,179	963	8,916	15,282
FRANCE					POLAND-DANZIG				
Wheat 1000 centals	1,016	0	1,034	804	Wheat 1000 centals	71	33	0	52
Wheat flour "	800	95	54	83	Wheat flour "	65	40	0	0
Rye "	0	0	3	1	Rye "	1,236	0	0	3
Barley "	10	0	349	124	Barley "	698	420	0	0
Oats "	1	0	31	21	Oats "	170	55	0	0
Maize "	2	1	659	1,093	Maize "	0	0	0	0
Rice "	10	19	634	687	Rice "	0	4	2	6
Linseed "	0	0	610	549	Linseed "	0	0	0	0
Cotton "	82	30	460	556	Cotton "	0	0	170	180
Wool 1000 lb.	5,961	3,490	50,993	25,501	Wool 1000 lb.	0	0	6,318	4,535
Butter "	306	437	379	33	Butter "	1,728	2,423	0	0
Cheese "	2,416	2,264	2,064	3,653	Cheese "	49	7	40	29
Cacao "	0	0	9,182	7,123	Cacao "	—	—	1,499	1,446
Tea "	0	2	291	207	Tea "	0	0	481	441
Coffee "	0	0	30,702	34,423	Coffee "	0	0	1,230	1,085
HUNGARY					ROMANIA				
Wheat 1000 centals	1,018	392	0	0	Wheat 1000 centals	1,366	1,708	0	0
Wheat flour "	88	41	0	0	Wheat flour "	2	0	0	0
Rye "	19	268	0	0	Rye "	172	57	0	0
Barley "	18	20	0	0	Barley "	61	457	0	0
Oats "	0	0	0	0	Oats "	0	0	0	0
Maize "	42	676	0	0	Maize "	1,276	86	0	0
Rice "	0	0	48	0					
Linseed "	0	0	1	40					
Cotton "	0	0	45	52					
Wool 1000 lb.	0	24	373	150					
Butter "	60	670	0	0					
Cheese "	108	29	0	0					
Cacao "	0	0	1,396	791					
Tea "	0	0	64	24					
Coffee "	0	0	520	311					
ITALY					UNITED KINGDOM				
Wheat 1000 centals	0	1	698	191	Wheat 1000 centals	174	68	14,857	9,088
Wheat flour "	146	179	3	5	Wheat flour "	189	202	822	684
Rye "	0	0	189	20	Rye "	0	0	0	6
Barley "	7	0	120	64	Barley "	0	0	1,562	1,746
Oats "	0	4	14	29	Oats "	6	1	132	88
Maize "	8	0	197	69	Maize "	202	263	3,750	5,664
Rice "	359	298	0	1	Rice "	9	3	277	160
Linseed "	0	0	107	132	Linseed "	0	0	571	555
Cotton "	0	0	250	368	Cotton "	52	32	1,017	1,252
Wool { (a) 1000 lb.	18	0	6,477	6,603	Wool 1000 lb.	33,222	27,117	112,474	91,578
Butter "	225	0	302	322	Butter "	1,098	1,124	89,459	94,964
Cheese "	112	223	99	37	Cheese "	282	412	28,678	22,886
Cacao "	4,751	4,015	606	717	Cacao "	545	595	64,662	17,983
Tea "	—	—	1,797	525	Tea "	7,621	7,705	25,796	27,002
Coffee "	—	—	24	33	Coffee "	529	1,184	14,304	10,792
			9,390	6,746					
SWEDEN					SWEDEN				
Wheat 1000 centals	49	72	56	83	Wheat 1000 centals	49	72	56	83
Wheat flour "	1	2	0	0	Wheat flour "	1	2	0	0
Rye "	0	0	2	3	Rye "	0	0	2	3
Barley "	0	0	0	0	Barley "	0	0	0	0

(a) Wool, greasy. — (b) Wool, scoured.

COUNTRIES PRODUCTS AND UNITS	EXPORTS		IMPORTS		COUNTRIES PRODUCTS AND UNITS	EXPORTS		IMPORTS	
	1939	1938	1939	1938		1939	1938	1939	1938
SWEDEN (concluded)					UNITED STATES				
Oats 1000 centals	2	4	0	39	Wheat 1000 centals	5,092	5,106	542	5
Maize " "	—	—	57	366	Wheat flour " "	1,084	857	1	0
Rice " "	—	—	6	17	Rye " "	0	340	0	0
Linseed " "	—	—	183	216	Barley " "	207	297	0	0
Cotton " "	—	—	67	55	Oats " "	4	127	29	0
Wool 1000 lb.	—	—	4,667	11,728	Maize " "	2,099	5,044	19	37
Butter " "	3,896	4,786	0	0	Rice " "	317	164	69	56
Cheese " "	—	—	536	185	Linseed " "	—	—	1,138	819
Cacao " "	—	—	1,755	1,413	Cotton " "	1,732	2,264	48	72
Tea " "	—	—	110	86	Wool 1000 lb.	20	18	25,441	3,622
Coffee " "	—	—	8,770	9,817	Butter " "	134	84	119	172
					Cheese " "	132	139	4,881	4,376
					Cacao " "	—	—	98,097	61,635
					Tea " "	—	—	8,376	7,139
					Coffee " "	1,248	814	197,581	186,756
SWITZERLAND					BRAZIL				
Wheat 1000 centals	0	0	615	920	Coffee 1000 lb.	168,178	186,247	—	—
Rye " "	0	0	8	9					
Barley " "	0	0	523	323	BURMA				
Oats " "	0	0	749	646	Wheat 1000 centals	1	1	3	4
Maize " "	0	0	208	251	Wheat flour " "	0	0	30	83
Rice " "	0	0	48	33	Barley " "	—	—	0	1
Cotton " "	0	0	54	58	Maize " "	5	6	—	—
Wool 1000 lb.	66	0	1,832	1,248	Rice " "	11,334	9,511	2	3
Butter " "	2	0	11	99	Linseed " "	0	0	0	0
Cheese " "	3,589	4,550	461	229	Cotton " "	35	29	0	0
Cacao " "	0	53	3,455	1,964	Wool 1000 lb.	40	11	0	0
Tea " "	0	2	141	152	Butter " "	—	—	46	64
Coffee " "	0	0	2,740	2,595	Cheese " "	—	—	11	11
					Tea " "	4	37	247	3,406
					Coffee " "	57	11	22	22
CZECHO-SLOVAKIA (1)					CEYLON				
Wheat 1000 centals	9	56	0	295	Wheat 1000 centals	—	—	45	10
Wheat flour " "	105	61	0	0	Wheat flour " "	—	—	37	17
Rye " "	0	0	0	370	Barley " "	—	—	1	1
Barley " "	98	94	0	0	Oats " "	—	—	2	1
Oats " "	1	157	0	2	Rice " "	0	0	1,383	1,377
Maize " "	0	42	30	41	Cotton " "	0	0	2	2
Rice " "	0	0	27	34	Butter 1000 lb.	—	—	75	44
Linseed " "	0	0	31	60	Cheese " "	—	—	24	15
Cotton " "	0	4	97	171	Cacao " "	752	871	—	—
Wool 1000 lb.	37	31	2,000	3,428	Tea " "	18,398	20,521	0	0
Butter " "	66	348	49	0	Coffee " "	0	0	245	324
Cheese " "	33	216	154	185					
Cacao " "	—	—	776	2,249					
Tea " "	—	—	40	90					
Coffee " "	—	—	930	2,152					

(1) For 1939 the data relate only to the period up to March 15.

VEGETAL PRODUCTION

Belgium: Except in the first and last days of the month, March was unfavourable for agriculture. It was cold and wet and there were falls of snow and hail. *Wheat* resown early sprouted fairly well and in many cases had a better appearance than crops which had survived the December frosts. A large expansion in area under *oats* and *flax* is forecast. The appearance of *clover* and *alfalfa* is unsatisfactory owing to the severe frosts. *Meadows* are mediocre.

Dott. VALENTINO DORE, gerente responsabile.

MONTHLY CROP REPORT AND AGRICULTURAL STATISTICS

The following explanations refer to crop conditions quoted in the crop notes and in the tables. — Crop condition according to the system of the country: Germany, Hungary, Luxemburg and Czecho-Slovakia: 1 = excellent, 2 = good, 3 = average, 4 = bad, 5 = very bad; Finland: 8 = very good, 6 = above the average, 5 = average; France: 100 = excellent, 70 = good, 60 = fairly good, 50 = average, 30 = bad; Estonia, Latvia, Lithuania, Poland, Romania and Sweden: 5 = excellent, 4 = good, 3 = average, 2 = bad, 1 = very bad; Netherlands: 90 = excellent, 70 = good, 60 = fairly good, 50 = below average; Portugal: 100 = excellent, 80 = good, 60 = average, 40 = bad, 20 = very bad; Switzerland: 100 = excellent, 90 = very good, 75 = good, 60 = fairly good, 50 = average, 40 = rather bad, 30 = bad, 10 = very bad; U. S. S. R.: 5 = good, 4 = above the average, 3 = average, 2 = below average, 1 = bad; Canada: 100 = crop condition promising a yield equivalent to the average yield of a long series of years; United States: 100 = crop condition which promises a normal yield; Egypt: 100 = crop condition which promises a yield equal to the average yield of the last five years. — For other countries the system of the Institute is employed: 100 = crop condition which promises a yield equal to the average of the last ten years.

See latest information at the end of the Crop Report.

VEGETAL PRODUCTION

The World Wheat Trade in 1938-39 and 1939 Wheat Crop Prospects.

The World Wheat Trade in 1938-39.

Wheat trade in March, the last month for which official statistics have been received by the Institute for the principal exporting and importing countries, was maintained as in January and February, at about the same level as last year, when trade was very restricted owing to the small exports of Argentina following her poor 1937-38 crop. This year this great exporting country has had a very large crop, as is confirmed by the final estimate recently published (336 million bushels against 185 millions last year and an average of 232 millions in the five preceding years). But in spite of the large surplus provided by her new crop Argentina has not disposed of large quantities on the international market. Exports from January to March 1929, were only 30 million bushels, or little more than the 20 millions exported in the same period of 1938. Two years ago with a much smaller surplus than this year's, Argentina had already in the quarter January-March 1937 disposed of 93 million bushels, or more than three times the amount disposed of in the first quarter this year. Exports from Australia, on the other hand, in spite of the rather small size of her new crop, continue at nearly the same level as last year, owing to a recovery in demand on the Far Eastern markets and the return of India to importing.

The exports of the United States also approach the level of last year, while the exports of Canada, alone of the four principal exporting countries, show a considerable increase. The total world exports of the first eight months of the

*World net Exports of Wheat (including flour in terms of wheat). **
(million bushels)

EXPORTS BY MONTHS				EXPORTS BY COUNTRIES			
Months	1938-39	1937-38	1936-37	Exporting Countries	Eight months: August-March		
					1938-39	1937-38	1936-37
August	54	38	47	Canada (2)	112	69	163
September	47	38	52	United States (2) . .	66	69	(5) + (21)
October	56	48	52	Argentina	52	46	126
November	48	49	56	Australia	60	69	61
December	43	44	53	Total four countries .	290	253	350
January	51	48	63	Romania	30	28	26
February	46	46	61	Hungary	20	7	20
March	49	50	62	Other Europ. count. (3)	8	11	23
April . . . . .	...	44	47	North Africa	6	11	6
May . . . . .	...	40	42	India	(5)+ (1)	10	8
June . . . . .	...	44	40	U. S. S. R.	34	37	3
July . . . . .	...	46	29	Other countries (4) .	6	4	10
Total August-March .	394	361	446	Total other countries .	104	108	96
Total Year	(1) 570	535	604	General Total	394	361	446

* Aggregate net exports of the normal exporting countries (possible net imports into certain of these countries are not deducted from the totals).

(1) Forecast March 1939. — (2) Net exports adjusted in accordance with the monthly variations in stocks of Canadian wheat in the United States and stocks of United States wheat in Canada. — (3) Bulgaria, Lithuania, Poland and Yugoslavia. — (4) Iran, Iraq, Turkey, Chile and Uruguay. — (5) Net imports.

season have been divided roughly as follows. Canada has supplied about 30 per cent., the United States, Argentina, Australia and the group of Danube countries about 15 per cent. each and the U. S. S. R., North Africa and the group of minor exporting countries about 10 per cent. on the aggregate.

From August through March, or during two thirds of the season, the net exports of wheat totalled 394 million bushels, or only 33 millions more than last season, when they were at one of the lowest levels of recent years. In March we had estimated that the probable world import demand for the whole of the season would amount to 570 million bushels. From the trade figures of the first eight months of the season it does not appear necessary, at any rate at present, to revise this forecast. It requires, in fact, total exports from April 1 to July 31 of 176 million bushels, at an average of 44 millions per month, against an average of 49 millions actually exported in the preceding eight months. The slight falling off in the level of export in the last few months of the season is a regular phenomenon, due to the availability of new crop supplies in the importing countries.

Owing to the large supplies in the exporting countries and the restricted demand of importing countries during the first eight months of the season,

the exportable balance on April 1, 1939 totalled about 756 million bushels, an extremely high figure, which, though not as large as the peak totals at this date between the years 1929 and 1934, was very little short of those figures.

Exportable Supplies of Wheat on April 1, 1939.¹

(Million bushels)

COUNTRIES	Year 1937-38			Year 1938-39		
	Total exportable supplies	Net exports from August 1 to March 31	Remainder on April 1 1938	Total exportable supplies	Net exports from August 1 to March 31	Remainder on April 1 1939
Canada	88	69	19	246	112	134
United States	179	69	110	301	66	235
Argentina	102	46	56	258	52	206
Australia	160	69	91	128	60	68
U. S. S. R.	43	37	6	37	(2) 34	3
European exporting countries . . .	58	46	12	154	58	96
North Africa, India and others . .	41	25	16	26	12	14
<i>Total . . .</i>	<i>671</i>	<i>361</i>	<i>310</i>	<i>1,150</i>	<i>394</i>	<i>756</i>

(1) Supplies afloat excluded. — (2) Partly estimated.

On April 1 about a half of the exportable balance was concentrated in North America (U. S. A. 31 per cent. and Canada 18 per cent.); 27 per cent. was in Argentina, 13 per cent. in the Danube countries, 9 per cent. in Australia and the remainder in the other minor exporting countries. Except in Australia, exportable supplies in all the principal exporting centres on April 1, 1939 greatly exceeded those on April 1, 1938. Surplus stocks in Argentina in particular are abnormally high, and also those in the Danube countries.

In regard to the importing countries of Europe, imports in March rose considerably and were definitely higher than in March 1938. This sudden rise is due essentially to the United Kingdom, which imported 26 million bushels, the largest quantity imported in any one month since October 1931. But in spite of this increase, the total imports of Europe from August 1 to March 31 were only 10 per cent. more than the small total of the same period of last season.

The imports of the Continent during the first eight months of the season were exactly the same quantity as in the corresponding period of last season. Thus the increase for the European countries as a whole is due entirely to the increase in demand of the British Isles, where large reserve stocks are being accumulated. Owing to the slight decrease in stocks afloat destined for European countries on April 1 and May 1, it may be assumed that imports in the last few months of the season will average about 37 million bushels a month, so that the total forecast for European demand in 1938-39 will be almost exactly reached.

*Net Imports of Wheat into Europe (including flour in terms of wheat) *.*
(million bushels).

IMPORTS BY MONTHS				IMPORTS BY COUNTRIES			
Months	1938-39	1937-38	1936-37	Importing Countries	Eight months: August-March		
					1938-39	1937-38	1936-37
August	40	35	25	United Kingdom . .	148	125	136
September	36	29	29	Ireland	11	10	8
October	42	33	32	Total	159	135	144
November	39	34	33	Belgium	23	26	28
December	32	33	36	Netherlands	19	16	14
January	24	28	25	Germany and Austria	36	31	7
February	30	32	37	France	0	10	5
March	40	35	43	Switzerland	12	10	11
April . . . . .	...	33	39	Greece	6	11	14
May . . . . .	...	34	49	Italy	5	2	25
June . . . . .	..	37	49	Scand. & Baltic Sta- tes (6)	12	10	12
July . . . . .	...	40	41	Other countries (7) .	11	8	0
Total August-March .	283	(2) 259	(4) 260	Total Continent . . .	124	(2) 124	(4) 116
Total Year	(1) 430	(3) 403	(5) 438	Total Europe	283	(2) 259	(4) 260

* Aggregate net imports of normal importing countries, after deduction of exports, if any.

(1) Forecast March 1939. — (2) After deduction of net exports of 1 million bushels from Sweden and of 1 million bushels of net exports from Czecho-Slovakia. — (3) After deduction of net exports of 0.7 million bushels from Sweden. — (4) After deduction of net exports of 3 million bushels from Czecho-Slovakia. — (5) After deduction of net exports of 9 million bushels from Czecho-Slovakia. — (6) Denmark, Estonia, Finland, Latvia, Norway and Sweden. — (7) Czecho-Slovakia, Spain, Portugal, Albania, Malta, etc.

The imports of the extra-European countries show a considerable increase on last year owing to the large purchases of the Far East and the demand from India.

The Condition of Standing Crops.

In last month's Crop Report, in summarizing the reports on the condition of standing crops in Europe at the beginning of April, we noted that the situation was very variable in different areas; it was unfavourable in several large producing countries of central and western Europe, but generally satisfactory in the south and east.

Crops were particularly mediocre in France, Germany, Belgium, the Netherlands and Poland, while in other countries wheat had resisted well the adverse conditions of the winter and spring, and their appearance was on the whole generally good. April was a very variable month: the first fortnight was fairly fine and sunny but the second was cold, stormy and wet. In the centre and west the fine weather of the first half of April caused a vigorous early growth of crops, which were considerably retarded, but the drop in temperature in the second

half of the month and the excessive moisture checked growth. In the south and east, where the dry and sunny weather had caused excessively rapid development and where there were some complaints of drought, rain in the third decade of April and the fall in temperature were very favourable. Thus at the beginning of May the condition of crops showed a fairly considerable improvement in most European countries, and the general tone of reports was satisfactory and promised for the continent as a whole an average, or slightly below average, production.

May opened with generally wet weather throughout the continent, precipitation being particularly heavy in the south. This precipitation was at first well received but later began to cause some preoccupation when it continued during the second decade of the month. At the same time the temperature remained rather low and there were very cold nights. These rather abnormal conditions do not allow a reliable estimate of crop prospects to be made. If the weather immediately turns fine with a slow and gradual rise in temperature, the crops of the southern and eastern countries may still be very large and those in other countries may be average. But if the bad weather persists or changes to warm weather too abruptly the wheat crop in Europe will be well below the average.

In regard to the other cereals, rye resisted the adversities of the winter and spring much better than wheat and its crop condition is generally reported to be satisfactory. The sowings of spring barley and oats were on the whole in good condition.

In the U. S. S. R. there were abrupt changes in temperature during April and in the first fortnight of May, but the rain which was particularly abundant and widespread had a beneficial effect on winter crops and created favourable conditions for the germination and growth of spring crops. Spring sowing proceeded in good conditions and at mid-May had made rapid progress. It seems that in a number of areas rye has not resisted the waves of intense cold which occurred during the winter and spring, when the fields had no snow cover; crop prospects are unsatisfactory. The damage suffered by winter wheat appears to be smaller and more or less limited.

In the United States the forecast of winter wheat production, made on May 1, gives a figure of 544 million bushels, which shows a small decrease of about 5 millions on the forecast made in the previous month. According to this estimate, the 1939 crop, though 21 per cent. below the excellent harvest of 1938, would be 9 per cent. higher than the previous five-year average. In the first half of May the mainly dry and hot weather was favourable in the east for the growth of crops, which made good progress, but was unfavourable for crops in the west, where there was drought. The small showers of rain which fell in this fortnight were limited to a part of the drought-affected areas and were not sufficient for growth. In the third week of May heavy rain fell in many parts, but its distribution was uneven and the benefit received was not very general. The first growth of spring crops took place in good conditions owing to the better sub-soil moisture reserves, but in an number of areas, following the spring drought, the need of heavy rain was beginning to be urgently felt.

The Canada the area that farmers intended to plant to spring wheat, according to the enquiry made by the Government on May 1, appeared to be practically the same as the area actually sown last year, (25,336,000 acres, compared with 25,188,000 in 1938). Sub-soil moisture reserves this year are more or less normal in most of the Prairie Provinces, but the small quantities of rain in April and in the first half of May were beginning to jeopardize the young crops, particularly in the south of the Wheat Belt. At the middle of May sowing was largely completed.

In India weather conditions were on the whole favourable for the last stage of maturation and for wheat harvesting. The second crop estimate, recently published, reflects, in fact, the improvement in prospects caused by the favourable weather. Total production is estimated at 365 million bushels, an increase of 20 millions on the estimate of last month. The new crop, though 30 million bushels smaller than the excellent production of last year, is 8 millions higher than the previous five-year average. Added to the large stocks left over from last year's crop, it leaves a total of supplies which is amply sufficient for internal consumption requirements during the coming season.

The condition of crops in Japan promises a more or less average production. In the near-Eastern countries large crops are expected.

In North Africa the prospects for a much better crop than last year were maintained, but in recent weeks there were complaints of excessive moisture, and it is feared that crops will be damaged following the appearance of a number of cases of rust. In Algeria the first forecast of production amounts to about 45 million bushels, against 35 millions last year and an average of 34 millions in the five preceding years. A very large production of barley is also forecast: 46 million bushels against 27 millions last year and an average of 34 millions. In Morocco an excellent crop is anticipated, and in Tunisia, in spite of the unfavourable weather of the beginning of May, about as large crop of wheat and a much larger crop of barley than last year are expected.

In Egypt, where also the wet weather was not entirely favourable for maturation, prospects continued to be satisfactory.

In the Southern Hemisphere preparations for sowing continued in Argentina in favourable conditions, but a decrease in the area under wheat is forecast. Operations for sowing are also well advanced in the various States of Australia, except in New South Wales, where they are hampered by excessive rain, and in Western Australia, where there is drought.

G. CAPONE.

Current information from various countries on Wheat, Rye, Barley and Oats.

Europe.

Germany: The condition of sowings improved in April. Fairly serious damage is reported to have been done to crops during the winter, particularly to winter barley.

Belgium: Except in the first and last days of the month, which were sunny, April was cold and wet and generally unfavourable for agriculture. Winter cereals, which

had survived the frost, were growing unevelly. In a number of localities they were completely lacking in vegetation. A poor crop of all cereals may be forecast. Wheat re-sown early has a good appearance. In some cases very heavy manuring has been applied. Oats and barley crops are rising well.

Bulgaria: In April the weather was favourable for the growth of winter cereal. The sowing of spring cereals also was carried out in good conditions.

Estonia: Low temperatures prevailed in April and the rainfall was light. Although these conditions retarded growth, winter cereal crops were considered satisfactory.

Finland: The temperature in April averaged 2° F. above normal and the condition of crops is average. Spring sowing began at the beginning of May.

France: In the first half of April, there were in the country as a whole, a number of comparatively warm sunny days, interspersed with rains which ensured a vigorous new growth. In the second fortnight, the weather was wet and colder. During this period, growth was checked. Conditions were very different in the south with a cold and dry first fortnight and a mild and wet second fortnight; the nights were cool in this area and prevented crops from making up their considerable lateness of growth.

Winter wheat which survived the December frosts had, on the whole, at the end of the month, a better appearance than in March. The hot weather of April encouraged growth which was vigorous at the end of the month, but many fields were still patchy, thus allowing weeds to spread, the destruction of which was difficult owing to bad weather. "Alternative" or half season wheat, sown at the beginning of January in dry soils had a satisfactory appearance; but the later seedlings and those on wet soils were affected by cold and excessive rain. Spring sowings were carried out in good conditions and germination was regular. Reports confirm that seedlings carried out in January and February with "alternative" wheat and spring wheat have not made up the loss of acreage of winter wheat killed by the December frosts.

In regard to minor cereals, rye, which fully resisted the December frosts, had at the end of April made good growth. Winter oats which survived the frost were thin and weed-infested. It is already known that this crop was completely destroyed in the north and severely affected in other areas. On the other hand, the condition of spring oats and barley was excellent. The area is considerably increased, since these crops have partly replaced winter wheat destroyed by the frosts.

Thus, at the end of April, wheat crops showed an average or rather unsatisfactory condition and a rather reduced area. Prospects for rye, barley and oats, on the other hand, were on the whole satisfactory. The first fortnight of May was, on the whole, excessively wet and cold for this time of year and these conditions were not favourable for crops.

Greece: After the fine and mild weather of January, February and the first half of March, which was favourable for the sowing and germination of cereals, very wet and rather cold weather in the second half of March damaged crops but not to a very serious extent. The excessive moisture and cold weather checked growth. But in some cases, where crops were too far advanced, this check has had the good effect of averting the danger of lodging. Towards the end of March and in the first two decades of April the weather, having turned drier and warmer, began to cause drought. Later, at the beginning of the last decade of the month heavy rain throughout the country favoured growth, even in the south.

Ireland: Comparatively little rain fell during April, the weather on the whole being favourable for field work. The crops were in satisfactory condition on May 1

Area and Crop Condition of Wheat, Rye and Meslin.

COUNTRIES	AREA					CROP CONDITION (+)											
	1939	1938	Average 1933 to 1937	% 1939													
				1938 = 100	Aver. = 100	I-V-1939			I-IV-1939			I-V-1938					
						a)	b)	c)	a)	b)	c)	a)	b)	c)			
Thousand acres																	
WHEAT																	
Germany (1) . w)	4,714	4,577	4,866	103.0	96.9	—	3.0	—	—	—	3.1	2.5	—	—	—		
Belgium . . . w)	446	428	391	104.2	113.9	—	—	—	—	—	—	(e)	—	—	—		
Bulgaria . . . w)	3,025	2,874	2,961	105.3	102.2	—	—	—	—	—	—	—	—	—	—		
France (2) . . w)	12,249	12,353	12,790	99.2	95.8	—	—	—	—	—	—	—	—	—	—		
Greece	2,283	2,062	1,989	110.7	114.8	—	—	—	—	—	—	—	—	—	—		
Italy {w}	12,635	12,151	12,364	104.0	102.2	—	—	—	—	—	—	—	—	—	—		
Latvia {s}	206	380	249	54.2	82.8	—	—	—	—	—	—	—	—	—	—		
Lithuania . . w)	180	167	184	108.0	98.1	3.4	—	—	—	—	—	—	—	—	—		
Luxemburg . . w)	361	356	389	101.6	93.0	—	100	—	—	3.5	—	103	—	—	—		
*Netherlands . w)	53	57	41	93.7	128.6	—	—	—	—	—	4.1	2.4	—	—	—		
Poland w)	...	276	301	...	...	—	—	—	—	—	—	(3) 76	—	—	—
Romania . . . w)	3,835	3,801	3,719	100.9	103.1	(3) 3.3	—	—	—	(3) 50	—	(3) 3.0	(3) 3.5	—	—		
Romania . . . w)	8,649	8,797	7,472	98.3	115.8	—	—	—	—	—	—	—	—	—	—		
United Kingdom:																	
Engl. and Wales	1,664	1,807	1,726	92.1	96.4	—	—	—	—	—	—	—	—	—	—		
*Switzerland . w)	...	151	142	...	...	84	—	—	—	83	—	—	74	—	—
Yugoslavia . . w)	5,236	5,335	5,282	98.1	99.1	—	—	—	—	—	—	—	—	—	—		
Total Europe . .	55,536	55,145	54,423	100.7	102.1	—	—	—	—	—	—	—	—	—	—		
Canada . . . {w}	657	742	554	88.5	118.7	—	—	98	—	—	—	—	—	94	—		
United States {s}	(4) 25,336	25,188	24,500	100.6	103.4	—	—	—	—	—	—	—	—	—	—		
United States {w}	38,936	49,711	36,595	78.3	106.4	—	—	—	—	—	—	—	—	—	—		
United States {s}	(4) 19,505	23,515	22,507	82.9	86.7	—	—	—	—	—	—	—	—	—	—		
Total America . .	84,434	99,156	84,156	85.2	100.3	—	—	—	—	—	—	—	—	—	—		
India (5)	32,999	33,722	33,676	97.9	98.0	—	—	—	—	—	—	—	—	—	—		
*Japan . . . . .	...	1,777	1,637	...	...	—	(f)	—	—	(f)	—	—	(f)	—	—
Egypt	1,503	1,470	1,443	102.2	104.1	106	—	—	—	102	—	—	104	—	—		
Tunisia	2,104	1,667	1876	126.2	112.2	—	—	—	—	—	—	—	—	—	—		
Total Africa . .	3,607	3,137	3,319	114.9	108.6	—	—	—	—	—	—	—	—	—	—		
GRAND TOTAL . .	176,576	191,160	175,574	92.4	100.6	—	—	—	—	—	—	—	—	—	—		
RYE																	
Germany (1) . w)	10,186	10,410	11,009	97.8	92.5	2.6	—	—	—	2.8	—	—	2.6	—	—		
Belgium	375	381	409	98.5	91.7	—	—	—	—	—	—	—	(e)	—	—		
Bulgaria . . . w)	423	436	449	97.1	94.2	—	—	—	—	—	—	—	—	—	—		
France (2) . . w)	1,604	1,621	1,671	98.9	96.0	—	—	—	—	—	—	—	—	—	—		
Greece	156	171	175	91.3	88.8	—	—	—	—	—	—	—	—	—	—		
Latvia w)	724	703	654	103.0	110.7	3.6	—	—	—	—	—	—	—	—	—		
Lithuania . . w)	1,278	1,296	1,227	98.6	104.1	110	—	—	—	—	—	—	—	97	—		
Luxemburg . . .	18	18	19	99.2	94.6	2.3	—	—	—	2.6	—	—	2.5	—	—		
*Netherlands . .	...	585	501	...	...	—	—	—	—	—	—	—	(3) 77	—	—
Poland w)	14,689	14,515	14,165	101.2	103.7	(3) 3.5	—	—	—	(3) 3.4	—	—	(3) 3.4	—	—		
Romania	939	1,177	964	79.8	97.4	—	—	—	—	—	—	—	—	—	—		
*Switzerland . . w)	...	34	36	...	...	82	—	—	—	81	—	—	75	—	—
Yugoslavia . . w)	533	549	539	97.1	98.8	—	—	—	—	—	—	—	—	—	—		
Total Europe . .	30,925	31,277	31,281	98.9	98.8	—	—	—	—	—	—	—	—	—	—		

COUNTRIES	AREA					CROP CONDITION †								
	1939	1938	Average 1933 to 1937	% 1939										
				1938 = 100	Aver. = 100	I-V-1939			I-IV-1938			I-V-1938		
						a)	b)	c)	a)	b)	c)	a)	b)	c)
Thousand acres														
Canada . . . (a)	573	553	541	103.5	105.9	—	—	93	—	—	—	—	—	94
United States . . . (s)	182	188	160	96.9	113.5	—	—	97	—	—	—	—	—	—
United States . . . (4)	4,079	3,979	3,043	102.5	134.1	—	—	—	79	—	—	—	—	—
Total America . .	4,834	4,720	3,744	102.5	129.2	—	—	—	—	—	—	—	—	—
GRAND TOTAL . .	35,759	35,997	35,025	99.3	102.1	—	—	—	—	—	—	—	—	—
MESLIN														
Belgium	4	4	8	95.3	52.9	—	—	—	—	—	—	—	—	—
Bulgaria	196	203	206	96.7	95.1	—	—	—	—	—	—	—	—	—
France (2)	162	162	169	99.9	96.0	—	—	—	—	—	—	—	—	—
Greece	148	146	136	101.2	108.8	—	—	—	—	—	—	—	—	—
Luxemburg	4	4	6	95.8	61.9	2.9	—	—	—	—	3.3	2.4	—	—
Switzerland	18	18	17	104.0	107.2	83	—	—	86	—	—	77	—	—
Yugoslavia	143	137	133	104.0	107.2	—	—	—	—	—	—	—	—	—
Canada (4)	1,173	1,159	1,156	101.2	101.5	—	—	—	—	—	—	—	—	—

† See explanation according to the various systems, page 411. — * Countries not included in the totals. — a) Above the average. — b) Average. — c) Below the average. — d) Very good. — e) Good. — f) Average. — g) Bad. — h) Very bad. — w) Winter crop. — s) Spring crop. — (1) Not including Austria. — (2) Acreage sown up to January 1. — (3) Middle of the previous month. — (4) Intentions to plant — (5) Fourth estimate.

and no losses were reported. Spring cereals were sown under good weather and soil conditions.

Italy: In the first half of April there was a considerable rise in temperature and in some areas a shortage of rain. The growth of wheat and other winter cereals made favourable progress. In the second half of the month heavy rain mixed with hail fell, but the condition of wheat and other cereals remained good or very good in almost all districts.

Latvia: The temperature and precipitation in April were normal and at the end of the month the snow still remaining on the hills had melted. According to the reports of crop correspondents, the crop condition of winter wheat on May 1 was average in 48.5 per cent. of cases, above average in 44.0 per cent. and below average in 7.5 per cent. The corresponding figures for winter rye were 34.7, 62.4 and 2.9 per cent.

Lithuania: The weather was fine in April but the temperature was low. Strong winds and lack of rain were unfavourable for crops. The sowing of spring cereals had begun about the middle of April but was hampered by cold weather and wind.

Luxembourg: The generally low temperatures and excessive moisture of the second half of April retarded the growth of all cereals. The sowing of spring cereals was carried out in good conditions and was finished at the beginning of May, except in the case of barley.

Netherlands: Wheat crops suffered severely from the rigorous winter. The *Cerveten* and *Mendel* varieties, which have the property of resisting cold better, were

Area and Crop Condition of Barley and Oats.

COUNTRIES	AREA					CROP CONDITION †								
	1939	1938	Average 1933 to 1937	% 1939		1-V-19391-IV-19391-V-1938								
				1938 = 100	Aver. = 100									
Thousand acres					a	b	c	a	b	c	a	b	c	
BARLEY														
Germany (1) . (w)	1,347	1,279	937	105.3	143.8	—	—	3.5	—	—	3.6	2.5	—	—
Belgium . . . (w)	58	58	70	99.0	82.3	—	—	—	—	—	—	(e)	—	—
Bulgaria . . . (w)	461	431	445	106.8	103.5	—	—	—	—	—	—	—	—	—
France (2) . . (w)	503	475	448	106.0	112.3	—	—	—	—	—	—	—	—	—
Greece (w)	518	512	525	101.1	98.6	—	—	—	—	—	—	—	—	—
Luxemburg . . .	5	5	6	104.2	82.7	2.5	—	—	—	—	—	2.8	—	—
*Netherlands . (w)	—	55	33	—	—	—	—	—	—	(3)39	—	—	—	—
Poland (w)	52	52	69	99.8	74.8	—	—	—	—	—	—	—	3.0	—
Romania . . . (w)	175	199	199	87.6	87.8	—	—	—	—	—	—	—	—	—
*Switzerland . (w)	—	3	3	—	—	85	—	—	81	—	—	78	—	—
Yugoslavia . . (w)	564	595	601	94.9	94.0	—	—	—	—	—	—	—	—	—
Total Europe . .	3,682	3,609	3,294	101.9	111.9	—	—	—	—	—	—	—	—	—
Canada	(4) 4,521	(5) 4,454	(5) 3,985	101.5	113.4	101	—	—	—	—	—	—	—	—
United States . .	(4) 13,219	(5) 11,334	(5) 12,322	116.6	107.3	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
*Japan	—	1,892	1,894	—	—	—	(f)	—	—	(f)	—	—	(f)	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
*Algeria	—	2,909	3,180	—	—	—	—	—	75	—	—	—	—	—
Egypt	272	274	284	99.3	95.7	104	—	—	101	—	—	107	—	—
Tunisia	1,606	756	1,149	212.4	139.8	—	—	—	—	—	—	—	—	—
GRAND TOTAL . .	17,173	15,217	15,900	112.8	108.0	—	—	—	—	—	—	—	—	—
OATS														
Bulgaria	274	286	316	96.0	86.8	—	—	—	—	—	—	—	—	—
France (2) . . (w)	2,274	2,233	2,110	101.8	107.8	—	—	—	—	—	—	—	—	—
Greece	372	358	340	103.8	109.5	—	—	—	—	—	—	—	—	—
Luxemburg	62	61	66	100.8	93.9	2.3	—	—	2.7	—	—	2.8	—	—
*Switzerland . . .	—	28	29	—	—	81	—	—	—	—	—	67	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Canada	(4) 12,701	(5) 13,010	(5) 13,538	97.6	93.8	—	—	98	—	—	—	—	—	—
United States . .	(4) 35,393	(5) 36,615	(5) 39,074	96.7	90.6	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
*Algeria	—	450	457	—	—	—	—	—	75	—	—	—	—	—
Tunisia	99	99	71	99.8	140.2	—	—	—	—	—	—	—	—	—
TOTAL	38,054	39,262	41,590	96.9	91.5	—	—	—	—	—	—	—	—	—

† See explanation according of the various systems, page 411. — * Countries not included in the totals. — (a) Above the average. — (b) Average. — (c) Below the average. — (e) Good. — (f) Average. — (w) Winter crop. — (1) Not including Austria. — (2) Acreage sown up to January 1. — (3) Middle of the month. — (4) Area indicated for harvest, calculated on farmer's intentions on March 1, 1939. — (5) Area harvested.

slightly less affected. In February winter wheat was still being sown, but for the most part spring wheat was used for resowing, though the latter gives a lower yield than winter wheat. Winter barley was mostly destroyed and that which was still surviving in the second half of April was in rather poor condition. The condition of winter rye is fairly good, as the crop was comparatively lightly affected by the winter frost.

Poland: According to the report of the Central Statistical Office, the second half of March was rather cold and wet. There were even several falls of snow and hoar-frost at night. At the beginning of April the north was still covered with snow. In the first half of April fine and much warmer weather stimulated the growth of winter cereals, particularly wheat, the crop condition of which improved considerably almost everywhere, except round Wilno and Nowogrodek, where the crop situation remained rather bad. The growth of winter cereals was estimated by 63 per cent. of correspondents as normal and by 37 per cent., particularly in the Wilno and Nowogrodek districts, as retarded. The sowing of spring cereals, though rather late, was carried out in good conditions. Sowing had not been begun only in the two afore-mentioned districts.

United Kingdom: The weather in April was very variable. In the first and last weeks there were cold north and east winds which in some places reached gale force. In the second and third weeks there were warm, sunny spells with high day temperatures but local night frosts. Sunshine was above normal, especially in the south. Rainfall was above normal in the south but below normal elsewhere.

Conditions were favourable on the whole for seasonal operations, but the cold spell towards the end of the month checked new growth. Wheat is generally a satisfactory plant., but both autumn and later sowings are still discoloured in a number of districts. Growth in Scotland was retarded owing to cold weather. Barley and oats were making fair progress at the end of April, re-seeding having been carried were necessary. Sowing conditions during April were mostly favourable and good seed beds were obtained, except on cold, heavy ground. Germination appeared to be generally satisfactory, but growth was retarded.

Switzerland: Weather was very variable in April. At times it was springlike and at the end of the month rather wet and cool. On the whole, conditions were not unfavourable for the crops.

Except for winter loss here and there, the winter cereals are thick and vigorous. In many areas, rye and barley were too thick and lodging may occur. Wheat is growing well, though in some districts the late sowings were adversely affected by the winter. Some damage was also done by spring-beetle larvae. On the whole, however, the condition of the winter cereals is promising.

Though somewhat late, spring sowing was favoured by the weather. Moisture was sufficient for normal germination and growth hitherto has been satisfactory.

Condition of spelt on May 1, 1939 was 85, in the system of the country, against 83 on April, 1, 1939 and 76 on May 1, 1938.

Yugoslavia: Cereal crops wintered well. There have been no serious floods, as last year. In fact, there was even drought in the Sava and Danube basins. The weather in March and April was generally fine and favourable for the growth of winter cereals.

U. S. S. R.: In the second half of April the weather was variable with more or less heavy precipitation in the north and centre of the European Territory. There

was also more or less heavy rain in same parts of Ukraina, Crimea and North Caucasus. Towards the end of the month and in the first decade of May a cold wave coming from the north brought cold and rainy conditions in the north, northwest and centre and had an unfavourable influence on sowing which slowed down towards the end of April and in the first decade of May, so that on May 10 the area sown to all spring crops was considerably smaller than the area sown to the same date last year.

Area sown to all Spring Crops.

(thousand acres)

	1939	% of Plan	1938	% of Plan
April 15	44,156	22	35,465	17
» 20	57,342	28	50,951	24
» 25	76,690	37	78,477	37
» 30	105,076	51	109,007	52
May 5	127,686	62	134,852	64
» 10	148,325	72	158,155	75

In the first decade of May there was also heavy rain in the Caucasus, while in the south of Ukraina and the Transvolga region precipitation was light. In the south of the Union mild weather prevailed in the first decade of May. The rain that fell in the centre of the European Territory augmented soil moisture reserves, which are now sufficient for a normal growth of winter and spring cereals. In the south, particularly Ukraina, the reserves had diminished, but in the lower subsoil the quantity of water is still considerable. Reserves in the trans-Volga area are rather reduced.

On May 10 the condition of winter cereals in the north was satisfactory. In the centre it was variable, being often unsatisfactory in the case of winter wheat. Winter cereals were in good condition in Ukraina, Caucasus, Crimea and also in the provinces of Kursk and Orel in White Russia. In the south and west of Ukraina winter cereals were in process of ear formation.

In southern Ukraina, in Transcaucasus and in North Caucasus, spring cereals were at the stage of stem formation. Conditions were favourable for growth and most of the meteorological stations reported crop condition as being from good to excellent and only in a few cases satisfactory.

In Siberia the condition of winter cereals varied from good to excellent, as was also that of spring cereals in Central Asia.

America.

Argentina: The sowing of cereals made good progress in April, except in the west of the grain belt, which was suffering from drought.

Canada: The Dominion Bureau of Statistics estimates from farmers' planting intentions that approximately 25,336,000 acres will be sown to spring wheat this year. This would be slightly above the average of the five years 1933 to 1937 and but little different from the area sown in 1938 (*See Table of Area and Condition of Cereals*).

The area sown to winter wheat in the autumn of 1938 is now estimated to have been 692,000 acres. The area remaining for harvest, after deduction of winter losses, as reported on May 1, is 657,000 acres. This would be 11.5 per cent. smaller than the 1938 area but 18.7 per cent. above the 1933-37 average.

The intended areas of oats, barley, rye and meslin are not substantially different from those of last year.

United States: The Crop Reporting Board estimates in its report as of May 1 that 38,936,000 acres of winter wheat remain for harvest of a total sown area of 46,173,000 acres. This indicates an acreage not to be harvested of 15.7 per cent., a proportion which, though higher than the abandonment of 1938, a very good year, is lower than the 1927-36 average abandonment of 18.2 per cent. The acreage not to be harvested includes not only winter killing but also diversion to other uses than grain, due partly to farmers' adjustments of their seeded acreage to their acreage allotments under the A. A. A.

The second forecast of winter wheat production is 326,357,000 centals (543,928,000 bushels). The final estimate of production in 1938 was 411,982,000 centals (686,637,000 bushels) while the average outturn of the period 1933 to 1937 was 298,260,000 centals (497,100,000 bushels); percentages, 79.2 and 109.4.

Subsoil moisture reserves were drawn on heavily in the Great Plains States during April and there was generally a lack of rainfall to replace surface moisture. Prospects in most of this area were somewhat below average on May 1. Slightly above average yields were indicated in parts of the Ohio Valley and of the Mountain States. May was expected to be a critical month.

The seeding of spring wheat, on a considerably lower scale than last year, was carried out in generally favourable conditions, but rainfall in April and May was much below normal and subsoil moisture early in May was becoming short. Temperatures in April were above normal. In both the northern Great Plains area and in the Pacific Northwest growing conditions were unfavourable in April and the crop on May 1 was largely dependent on good precipitation in the coming two months. Rye prospects were better than average on the whole, particularly in the North Central States.

Production of rye in 1939 is expected to reach 26,200,000 centals (46,700,000 bushels) as compared with 30,822,000 centals (55,039,000 bushels) in 1938 and with a 1933-37 average of 19,290,000 centals (34,447,000 bushels); percentages, 84.8 and 135.6.

Oats prospects in the Southern States were much poorer than last year in Texas and Oklahoma, but in the other Southern States were about equal to last year.

The weather was warmer and favourable in the east during the first week of May but rain was needed in the west. The winter wheat crops showed some deterioration, particularly in parts of Oklahoma, Texas and Kansas but conditions in the spring wheat states were generally satisfactory with seeding practically completed.

In the second week of May high winds intensified drought conditions over large areas in the west, but rain benefited parts of Kansas, Oklahoma, Texas and the Rocky Mountain regions. Generally low temperatures retarded germination and growth but farm work advanced rapidly. Progress of winter wheat was fair to good.

A s i a .

India: In the last decade of April crop condition was reported to be on the whole fairly good. In the Punjab in April and the first week of May the weather was dry except for light showers. Crop condition at the end of that period was average to good in irrigated areas and under average to average in unirrigated areas. The crop was affected by rust in Lahore and by insects in Multan.

(Telegram of May 23): Production of wheat is estimated at 218,736,000 centals (364,560 bushels) against the previous month's estimate of only 206,640,000

(344,400,000). It shows a decrease of 7.5 per cent. on the corresponding estimate of 263,387,000 (393,979,000) in 1937-38 but an increase of 2.3 per cent. on the corresponding five-year average of 213,920,000 (356,533,000). According to a telegram received on the same date from the Government of the Punjab, production in that Province, which is included in the above total, is now estimated at 80,304,000 centals (133,840,000 bushels) against the previous months' estimate of 74,440,000 (124,100,000). It shows a decrease of 10.8 per cent. on the corresponding estimate of 90,003,000 (150,005,000) in 1937-38 but an increase of 3.3 per cent. on the corresponding five-year average of 77,768,000 (129,614,000).

Japan: Favoured by the weather of the first days of May, winter wheat and barley are in normal condition.

Palestine: Weather conditions were seasonable with rain during the first fortnight of April. Hot easterly winds, high temperatures and low humidity, changed quickly to cold conditions in the latter half of the month. Crops were not affected by sciroccos. No diseases were reported. There was heavy straw growth with well filled ears. Crop condition and prospects are excellent. The barley crop now in the course of being harvested is excellent, with a fine sample of grain.

Syria and Lebanon: There have been good rains and favourable weather conditions for the tillering of cereals. Some minor damage by field-mice is reported in certain districts. Crop condition is good.

Africa

Egypt: Maturity of the wheat crop is progressing satisfactorily. Harvesting was started about the middle of April in Upper Egypt, where already one third of the crop has been harvested. In other localities, however, harvesting has only been started in limited areas. The crop is satisfactory. Harvesting of the barley crop is over in Upper Egypt and is general in other localities. Threshing and storing are in progress. The yield per acre is expected to be slightly above the average.

French Morocco: Rain, followed by a very sharp drop in temperature, occurred at the end of March and there was frost in the whole of north Morocco, affecting early crops in certain places. In April, the weather was variable, changes in temperature and wind being frequent; rain was of short duration but widespread.

The growth of wheat continued to be excellent, serious losses due to frost among early cereals and due to *cecidomyia* among late varieties being very localized. The ripening of soft wheat began in the south and hopes of high yields in the whole of Morocco will soon be realised if the weather is normal.

The harvesting of barley began in Chaouïa, Doukkala, Abda and Rehamma and the yields forecast are very much higher than the average of preceding years.

The condition of cereals on the whole is excellent.

Tunisia: In April the temperature remained below average and the sky was mostly overcast. Very heavy rain fell successively over the various parts of the country, particularly the south and far south. The heavy rain caused wheat lodging in certain areas (Souk' El Khémis and Béja). On the whole, however, on May 1 the crop condition of wheat and maize was good, that of oats very good and that of barley and rye excellent.

Oceania.

Australia: Good rains over the greater part of New South Wales in March greatly improved conditions in the wheat belt. In parts of the southwestern slopes and Riverina, prolonged rain delayed preparations for the new crop, but sowing could safely be delayed for some time. In other districts work was well forward at the beginning of April.

Heavy rains in March in Queensland interrupted land preparation for the coming wheat crop, but provided valuable subsoil moisture reserves and ensured favourable conditions for seeding.

Moderate to heavy rains fell over the greater part of South Australia early in March, and land for the coming wheat crop greatly benefited.

March was dry and hot in Western Australia but following the heavy rains of mid-February, the soil was expected to be in good order for winter sowing provided good rains should come in April and May.

Current information on Maize.

Bulgaria: The weather in April was favourable for seeding preparations and for sowing itself which is proceeding actively.

Greece: The preparation of the land, which had begun in good condition in January and February, was checked in March by bad weather, which would have the effect of delaying the sowing and growth of maize. But the return of fine and warm weather in April improved the situation.

France: The preparation of the land was in many cases hampered in April by the bad weather. The first fortnight of May was wet and cold and also unfavourable.

Italy: The weather in the first half of April was very favourable for the preparation of the land for maize sowing. In the second half sowing proceeded normally and the first germination was even.

U. S. S. R.: Maize was growing in good conditions in the south, where at the end of the first decade of May, crops had reached the stage of formation of the third leaf.

Argentina: In April the threshing of maize was in full swing. Results were considered as average on the whole.

United States: Maize planting advanced satisfactorily during the last week of April and the first week of May.

Netherlands Indies: Java and Madura. — The Department of Agricultural Statistics of the Central Statistical Office communicates the following details on the maize area:—

	1939 acres	1938 acres
Area harvested in March.	437,000	668,400
Area harvested from January 1 to March 31	2,374,000	2,273,200
Area of standing crops at the end of March.	680,000	642,700

Indochina: The crop was being harvested in March in Cambodia and Cochinchina with medium yields in nearly all parts. In Annam, growth was showing the effects of drought at the end of the month; yields will be considerably lower. Growth in Tonkin was good and husking was begun.

French Morocco: Maize sowing was carried on during April. The weather was favourable for crops and growth at the end of the month was quite satisfactory though

Area and Production of Maize.

COUNTRIES	† AREA					† PRODUCTION							
	1938 and 1938- 1939	1937 and 1937- 1938	Aver. 1932 to 1936 and 1933- to 1936- 1937	% 1938 and 1938-39	Average 1937- 1938 = 100	1938 and 1938- 1939	1937 and 1937- 1938	Average 1932 to 1936 and 1932-33 to 1936/37	1938 and 1938- 1939	1937 and 1937- 1938	Average 1932 to 1936 and 1932-33 to 1936-37	% 1938 and 1938-39	Average 1937- 1938 = 100
			1937 and 1937- 1938 = 100	1937 and 1937- 1938 = 100				1932-33 to 1936-37			1932-33 to 1936-37		
ooo acres					ooo centals				ooo bushels				
Albania . .	230	227	208	101.0	110.5	3,116	3,020	2,666	5,564	5,393	4,760	103.2	116.9
Germany (1)	343	254	183	135.2	187.5	8,593	6,672	3,792	15,344	11,915	6,771	128.8	—
Bulgaria . .	1,731	1,685	1,751	102.7	98.8	11,735	18,944	19,876	20,955	33,828	35,493	61.9	59.0
*Spain . .	—	—	1,082	—	—	—	—	15,856	—	—	28,314	—	—
France . .	848	854	842	99.3	100.7	14,040	11,344	10,838	25,071	20,257	19,353	123.8	129.5
Greece . .	671	690	618	97.2	108.5	4,398	7,112	5,182	7,853	12,700	9,253	61.8	84.9
Hungary . .	2,901	2,955	2,830	98.2	102.5	58,688	60,820	45,640	104,801	108,607	81,500	96.5	128.6
Italy . . (4)	3,297	3,167	3,242	104.1	101.7	58,077	67,149	57,896	103,710	119,910	103,385	86.5	100.3
Malta . . (5)	427	467	371	91.5	115.1	6,658	7,714	5,484	11,889	13,774	9,792	86.3	121.4
Poland . .	218	228	227	95.8	96.0	2,783	2,274	2,067	4,969	4,060	3,691	122.4	134.6
*Portugal . .	—	909	1,040	—	—	—	7,051	7,001	—	12,592	12,503	—	—
Romania . .	12,349	12,749	12,374	96.9	99.8	112,399	104,760	116,337	200,713	187,071	207,745	107.3	96.6
Switzerland . .	2	2	2	101.7	98.8	54	55	53	96	98	94	98.1	102.4
Czecho- (6)	271	239	209	113.3	129.5	5,088	4,930	3,427	9,087	8,804	6,121	103.2	148.5
Slovakia (7)*	176	217	173	81.3	101.9	2,636	1,996	1,996	4,707	3,564	—	—	—
Yugoslavia . .	6,802	6,649	6,371	102.3	106.8	104,849	117,636	95,831	187,232	210,065	171,128	89.1	109.4
Total Europe	30,090	30,156	29,228	99.7	102.9	390,481	412,432	369,093	697,289	736,486	659,093	94.7	105.8
*U. S. S. R. . .	6,034	6,618	8,463	91.2	71.3	—	—	101,824	—	—	146,293	—	—
Canada . .	180	166	152	108.8	118.5	4,306	3,032	3,445	7,690	5,415	6,151	142.0	125.0
Unit. St. (11)	91,792	93,741	99,544	97.9	92.2	1,423,653	1,484,719	1,187,521	2,542,238	2,651,284	2,120,574	95.9	119.9
(12)	(82,106)	(81,483)	—	100.8	—	1,275,265	1,316,167	1,018,659	2,277,259	2,350,299	1,819,034	96.9	125.2
*Mexico . .	—	7,413	7,526	—	—	—	36,040	39,128	—	64,357	69,872	—	—
Total N. Am.	91,972	93,907	99,696	97.9	92.3	1,427,959	1,487,751	1,190,966	2,549,928	2,656,699	2,126,725	96.0	119.9
*China . .	—	—	11,201	—	—	—	—	137,824	—	—	246,115	—	—
Korea . .	341	335	289	101.8	113.3	2,107	2,639	1,991	3,763	4,712	3,555	79.9	105.8
Manchukuo . .	4,351	3,445	2,839	126.3	153.3	55,336	45,961	39,487	98,814	82,074	70,513	120.4	140.1
Palestine . .	21	18	14	112.5	148.9	176	191	96	315	341	171	92.2	184.5
Syria & Leb. . .	48	48	54	101.3	90.6	606	599	520	1,081	1,070	928	101.1	116.5
*Transjord. . .	—	—	—	—	—	3	2	5	6	3	8	169.4	67.4
Turkey . .	1,172	1,112	1,015	105.4	115.5	13,305	11,929	11,127	23,759	21,301	19,870	111.5	119.6
Total Asia	5,933	4,958	4,211	119.7	140.8	71,530	61,319	53,221	127,732	109,498	95,037	116.6	134.4
Ital. East Afr.	—	—	—	—	—	—	—	—	—	—	—	—	—
*Eritrea . .	—	25	26	—	—	—	86	184	—	154	329	—	—
*Somalia . .	—	—	34	—	—	—	—	317	—	—	565	—	—
Algeria . .	15	16	19	94.0	78.5	94	78	114	168	140	204	120.3	82.4
Egypt. (14)	1,545	1,613	1,698	95.8	91.0	34,449	36,275	36,297	61,516	64,777	64,816	95.0	94.9
(15)	9	6	7	153.8	124.5	178	127	141	318	227	251	139.8	126.4
Kenya (16)	112	113	122	98.6	91.6	1,817	1,936	1,893	3,244	3,457	3,379	93.8	96.0
French Morocco . .	1,141	1,120	963	101.9	118.5	4,792	3,561	4,171	8,558	6,360	7,449	134.6	114.9
Anglo-Egypt.	—	—	—	—	—	—	—	—	—	—	—	—	—
Sudan . .	26	21	25	126.6	104.5	70	215	218	124	383	389	32.4	31.9
Tunisia (17)	43	67	48	63.8	89.0	121	132	123	217	236	220	91.7	98.2
Total N. Afr.	2,891	2,956	2,882	97.9	100.3	41,521	42,324	42,957	74,145	75,580	76,708	98.1	96.7
Argen- (3)	(13,097)	(15,319)	(16,567)	85.5	79.1	—	—	—	—	—	—	—	—
tina (18)	—	7,307	11,641	—	—	119,050	97,533	193,978	212,590	174,166	346,391	122.1	61.4
*Chile . .	105	107	125	98.4	84.7	—	1,238	1,496	—	2,211	2,671	—	—
Uruguay . .	576	529	549	108.8	104.9	3,627	2,928	2,821	6,476	5,228	5,037	123.9	128.6
Madagascar . .	247	280	205	88.2	120.3	2,205	2,756	1,825	3,937	4,921	3,259	80.0	120.8
Un. of (16)	6,682	6,051	5,780	110.4	115.6	—	—	—	—	—	—	—	—
S. Afr. (19)	—	—	—	—	—	55,888	36,312	30,864	99,800	64,843	55,114	153.9	148.4
TOTALS \$. .	147,398	147,854	155,892	99.7	94.5	2,112,261	2,143,355	1,892,514	3,771,897	3,827,421	3,379,488	98.5	111.6

† The years indicated are those of the harvest, single years referring to the Northern Hemisphere, double years to the Southern. — * Not included in the total. — § In calculating the totals account has been taken of the probable area cultivated in some countries for which estimates of production are available but not those of area. — (1) Including Austria. — (2) Estimate for the old territory. — (3) Area sown. — (4) Maize sown in spring. — (5) Maize sown in summer. — (6) Crop grown alone. — (7) Mixed crop. — (8) Average 1934 to 1936. — (9) Area fixed by the Plan. — (10) Average 1932 to 1935. — (11) Maize for all purposes. — (12) Maize harvested as grain. — (13) Including Tigris. — (14) *Nili* maize. — (15) *Sefi* maize. — (16) Cultivation by Europeans. — (17) Maize and sorghum. — (18) Area harvested. — (19) Cultivation by natives.

a few minor fields had to be resown owing to bad germination as a result of the drop in temperature at the end of March.

Tanganyika: Good progress with maize planting was reported in March from most districts.

Tunisia: The area under maize and sorghum in 1939 is estimated at 61,800 acres against 42,500 acres in 1938 and an average of 52,200 acres in 1933 to 1937; percentages, 145.2 and 118.3.

Union of South Africa: Prospects for maize crops in March in the Union as a whole were very promising. In the Orange Free State only light rains fell during the month. Provided no early frosts should occur, excellent crops were expected. There was sufficient rain and pleasant sunshine in Transvaal. Only a few parts of the western highveld were experiencing drought. Crop prospects were promising. In Natal the weather in March turned much cooler. Rain fell only locally, and good progress was made with cultivation. Prospects for good crops were enhanced.

Current information on Rice.

Italy: The first half of April was very favourable for the preparation of the land for rice sowing. At the end of the month sowing was nearly finished.

British Guiana: In March the spring rice crop was being reaped, and returns were reported to be fair.

Netherlands Guiana: Owing to very heavy rain during almost all the growing season the yield per acre is below normal but the quality is fairly good.

India: In Bengal there was light to moderate rain in April and the first decade of May, at times inadequate for field operations. Good general rain was needed. In Bihar and in Orissa there was light rain. In Assam the weather was favourable in mid-April in the Surma valley but dry in the Assam valley, where rain was badly needed, but in the first half of May it was generally seasonable and crop conditions and prospects were fair.

In the Central Provinces the weather in April and the first week of May was hot, with cloud and localized light showers in the first three weeks but clear skies in the last fortnight.

In Madras there was rain over the whole of this period, on the whole moderate but very heavy in the Carnatic in the second week of April.

Netherlands Indies: Java and Madura. — The Department of Agricultural Statistics of the Central Statistical Office communicates the following details on the rice area:—

	1939 acres	1938 acres
<i>Area harvested in March:—</i>		
Wet padi	473,200	479,000
Dry padi	247,400	324,900
<i>Area harvested from January 1 to March 31:—</i>		
Wet padi	793,000	791,000
Dry padi	323,500	419,800
<i>Area of standing crops of the end of March:—</i>		
Wet padi	6,727,300	6,681,600
Dry padi	594,300	524,900

Indochina: The rice crop situation in March in the various parts of the Union, excepting Laos, was as follows:

The area under rice in Annam (first half-year) in 1939-40 is estimated at 1,075,500 acres against 1,180,000 acres in 1938-39 and an average of 1,020,500 acres in 1933-34 to 1937-38; percentages, 91.1 and 105.4.

In North Annam the growth of fifth-month rice continued very satisfactorily; tillering took place normally and flowering began among early crops. In Central and South Annam drought impaired crops, particularly fifth-month rice. Early crops, however, particularly third-month rice, yielded normal harvests. In the far south yields were mediocre owing to drought.

In Cambodia many further flooded-land crops were planted out. Dry-season rice was harvested; yields were passable on all lands which it was not possible to irrigate.

In Cochinchina rice harvesting was finished in almost all districts with satisfactory yields. Cultivation was begun in preparation for the 1939-40 rice season and for other crops.

In Tonkin, following favourable weather conditions, the growth of fifth-month rice was very satisfactory. Tillering was good everywhere; it had finished in fields planted out in December-January and was continuing in those planted out in February.

British Malaya: By the end of February in North Kedah the harvest was almost complete, and in the Central and South Districts was well in hand. After receiving reports on the areas so far reaped, considerable optimism was felt locally as to the total crop likely to be harvested and it was expected to exceed last year's by a considerable amount. During February weather conditions were dry and very favourable for harvesting. Over the greater part of Pahang the harvest was completed. Although weather conditions during part of the season were very unfavourable, the crop harvested was better than had been expected and some reports stated the yields to be greater than those of the previous season. General prospects for the 1938-39 season were confirmed to be good. It was stated that, summing up the general impression one obtains from district reports, it would appear that the area planted in Malaya in the current season is rather larger than last season, and that the crop harvested should be appreciably greater than in the 1937-38 season.

Tanganyika: It was reported in March that the yields of rice were expected to be poor except where it is grown under swamp conditions.

Current information on Potatoes.

France: The preparation of the land was very often made difficult during April by unfavourable weather conditions. At the end of the month, there was a fairly considerable delay in planting. The first fortnight of May was wet and cold and also appears to have been unfavourable for crops.

Greece: The planting of early potatoes continued in March in spite of unfavourable weather. A return of drier and warmer weather in April, the increase in the area sown and the wider use of selected tubers indicate that the production of potatoes will be considerably increased.

Italy: In the first half of April the rise in temperature stimulated the growth of early potatoes. At the end of the month crop condition was good.

The area planted to early potatoes in 1939 is estimated at 79,800 acres against 84,600 acres in 1938 and an average of 73,300 acres in 1935 to 1937; percentages, 94.3 and 108.9.

Argentina: The lifting of potatoes in Buenos Aires Province in April gave variable and on the whole unsatisfactory yields. Crop prospects for late varieties varied from average to good.

Canada: According to the official report on farmers' planting intentions at May 1, the area under potatoes in 1939 will be about 522,000 acres. This compares with a planted area of 521,900 acres in 1938 and with a 1933-37 average of 527,400 acres; percentages, 100.0 and 99.0.

General Review of the Condition of Sugar-beet Crops.

After a spell of spring weather in the first half of April, cold and wet weather returned in the second half of the month and this frequently interrupted the preparation of the land in nearly all the beet growing countries of Europe. But these conditions did not prevent sowing from being carried out in good time, and being largely finished before the end of April.

In the first half of May the weather continued cold and wet and had an unfavourable effect on sugar-beet crops. In central and northern Europe the growth of the young plants, which had perhaps been in advance of the normal slowed down owing to the lack of sun and to frequent, cold precipitation. !

The growth of crops, though slow and rather struggling, was still fairly even and crops were still, with few exceptions, more or less uniform, if weak. The weather was also unfavourable for cultivation, though the first hoeing was carried out almost everywhere.

The cold weather of the first half of May militated against the spread of insect pests, which are reported only in a few districts. Excessive moisture, however, encouraged the spread of weeds, which were particularly rife where rain had interrupted seasonal operations.

In southern Europe also, beet crops encountered unfavourable weather conditions. The bad weather and long rainy period, having found crops in a more advanced state than further north the damage was smaller; it was even estimated on the whole that, if the season should improve, crops might recover without difficulty.

The estimates of area under sugar-beet, published in the accompanying table, are mostly unchanged from last month. Some revision has been made only in the estimates for Germany, Bohemia-Moravia and Slovakia, Belgium, Lithuania, Romania and Yugoslavia. In Asia there have been added estimates for Manchukuo and Turkey. These modifications have been made on the basis of reports from the various governments, sugar manufacturing associations, or the International Society for Sugar Statistics.

The changes, however, have not involved any substantial alteration in the total of sugar-beet acreage.

Production of Cane-sugar.

COUNTRIES	1938-39 (1)	1937-38	Average of 1932-33 to 1936-37	1938-39 (1)	1937-38	Average of 1932-33 to 1936-37	% 1938-39	
							1937-38	Average
	thousand centals			short tons			= 100	= 100
AMERICA.								
Antigua.	573	493	523	29,000	24,640	26,125	116	110
Argentina.	10,362	8,170	8,074	520,000	408,480	403,673	127	128
Barbados.	3,248	2,496	2,542	162,400	124,784	127,124	130	128
Brazil.	25,353	22,827	19,949	1,270,000	1,141,300	997,456	111	127
Cuba.	61,730	67,199	55,589	3,100,000	3,360,000	2,779,408	92	111
Ecuador.	419	397	402	21,000	20,000	20,081	106	104
United States (La. & Fl.)	11,600	9,240	6,408	580,000	462,000	320,439	126	181
British Guiana.	3,968	4,368	3,724	200,000	218,000	186,173	91	107
Jamaica.	2,676	2,647	1,803	133,800	132,371	90,163	101	148
Martinique.	1,213	1,135	1,053	61,000	56,800	52,646	107	115
Mexico.	7,772	6,687	5,483	388,602	334,325	274,142	116	142
Peru.	10,141	9,061	8,933	510,000	453,000	446,652	112	114
Puerto Rico.	17,417	19,936	18,392	870,000	996,800	919,577	87	95
Dominican Republic.	9,259	9,149	9,131	460,000	457,000	456,557	101	101
St. Kitts.	717	626	642	35,840	31,287	32,125	115	112
Trinidad.	3,527	2,993	2,925	180,000	149,662	146,248	118	121
Venezuela.	540	540	486	27,000	27,000	24,295	100	111
Total America.	170,515	167,964	146,059	8,548,642	8,397,449	7,302,884	102	117
ASIA.								
Taiwan.	32,959	25,904	18,313	1,648,000	1,295,000	915,628	127	180
India.	65,037	71,342	72,823	3,250,000	3,567,000	3,641,086	91	89
Japan.	3,286	2,576	2,202	164,300	128,689	110,117	128	149
Java.	34,172	30,841	19,888	1,710,000	1,542,037	994,406	111	172
Philippines.	22,708	22,064	24,316	1,140,000	1,103,200	1,215,777	103	93
Total Asia.	158,162	152,727	137,542	7,912,300	7,636,026	6,877,014	104	115
AFRICA.								
Egypt.	3,573	3,532	3,223	178,600	176,604	161,171	101	111
Madagascar.	265	238	243	13,000	11,900	12,000	111	109
Mauritius.	7,084	6,919	5,593	354,180	345,920	279,627	102	127
Reunion.	1,764	1,764	1,632	90,000	90,000	81,604	100	108
Union of South Africa	11,578	11,272	8,767	578,900	563,570	438,321	103	132
Total Africa.	24,264	23,725	19,458	1,214,680	1,187,994	972,723	102	125
OCEANIA.								
Australia.	18,298	18,109	14,692	910,000	905,400	734,582	101	125
Hawaii.	20,701	20,272	20,311	1,035,000	1,013,600	1,015,529	102	102
Fiji Is.	3,086	3,197	2,905	150,000	160,000	145,264	97	106
Total Oceania.	42,085	41,578	37,908	2,095,000	2,079,000	1,895,375	101	111
TOTALS.	395,026	385,994	340,967	19,770,622	19,300,469	17,047,996	102	116

(1) Approximate data.

U. S. S. R.: On May 5, 97 per cent. of the Plan of sugar-beet planting had been executed against 96 per cent. at the corresponding date of last year and consequently sowing was practically finished. In most producing areas germination took place in good conditions. In the south the first operations of cultivation had already begun.

Argentina: The condition of sugar-beet crops in April was good in the irrigated zones of Buenos Aires Province, while in some parts of Río Negro disease had damaged crops.

The condition of sugar-cane plantations in April was very good.

Barbados: During March weather conditions were less favourable than in February, only light showers being experienced.

British Guiana: The weather in March was favourable for the cane crop. All sugar estates were grinding and yields were reported to have been good, but it was expected that the total crop would be short, owing to the excessive rains of last year.

Leeward and Windward Islands: It was reported in March that in St. Kitts the young cane crop for next year was looking very promising. The sugar crop had already started in St. Lucia.

Jamaica: During March cane grinding was proceeding satisfactorily.

Trinidad: In March the weather continued ideal for the sugar crop, and the factories were being amply supplied with cane. Several cane fires were reported.

Indochina: Planting of green canes continued in Annam during March while planting of red canes was completed early in the month. Growth was good in CochinChina where cane plantations have been substituted for pineapples.

Mauritius: The cyclone which passed near Mauritius on March 19 caused moderate damage; since then the growing conditions for the new cane crop were favourable.

Australia: Flood rains inundated many canefields in the northern sugar-growing areas in Queensland in March but reports indicate that the cane suffered little damage. Heavy rains in the Lower Burdekin district provided a respite from irrigation and replenished underground water supplies which had shown signs of receding. The southern sugar areas also benefited from the rains.

Current information on Vines.

France: In the south, April was cold and dry in the first fortnight and mild and wet in the second fortnight, with variable conditions towards the end of the month. In other areas, the first fortnight of April was comparatively warm and sunny with occasional rain. The second fortnight was cold and rather wet and similar conditions persisted until May 15. The planting of vines was finished about the middle of April. Growth, on the whole, was about a fortnight later than normal. At the end of April, budding was general in well-exposed vineyards and was satisfactory. Cluster formation appears to be at least average in the most advanced vines. The damage done by the winter frosts, though rather serious in some cases, is more or less localized. Frost on April 30 in the South also did damage which appears to be limited and, on the whole, unimportant. The wet spring is giving rise to fears of a spread of mildew with the return of sunny and warm weather.

Italy: The growth of vines in April was good.

Luxemburg: The low temperatures and wet weather of April did not have any unfavourable effect on the growth of vines.

Argentina: The vintage was carried on actively in April with good results in the principal producing centres. In Mendoza yields are normal in spite of the damage done to vines by the October frosts. In the Río Negro Valley the production of grapes is on the whole satisfactory, though below normal.

Drought in San Juan has considerably reduced grape production. The yields in Jujuy and Salta are lower than last year. In Catamarca and La Rioja forecasts are generally good.

French Morocco: The end of March was wet with a very sharp drop in temperature. Frosts were reported throughout north Morocco. The weather in April was changeable with frequent variations in temperature and direction of wind; rain was of short duration but widespread. Vines, which had been well advanced, suffered from these sudden falls in temperature, but in many vineyards budding out only took place after the frosts and the loss, estimated at about 25 to 75 per cent. of the crop in Rharb, was not universal. But another frost of about -2° to -3° C. occurred at Meknes and Fès towards the end of April. This frost caused further losses, for growth was already advanced at that period.

Tunisia: In April the temperature remained below the average and the sky was mainly overcast. Very heavy rain fell successively in the different parts of the country. Owing to the alternation of rain and sun, the budding out of vines was rather late. Mildew and *oidium*, which had made an appearance were energetically combatted.

Current information on Olives.

France: The first half of April was dry and cold and the second half mild and wet. Considerable progress was made with cultivation, which had been neglected for several years. The improvement is due to the good crop of 1938, to the high price of oil and to the measures taken by the Government. Moth was doing fairly serious damage to a large number of trees at the end of April.

Italy: The growth of olive trees in the first half of April was good and the blossom was satisfactory. At the end of the month crop condition was normal.

Argentina: The condition of olive trees in April was generally good. The yields obtained so far have been very satisfactory, as is also the market price of the new crop.

French Morocco: The weather in April was changeable with short but widespread rains and very sharp falls of temperature towards the end of the month. In the Fès area the blossoms and young shoots of the trees were completely withered by frost, with losses of the crop amounting to 50 to 100 per cent. Elsewhere, such as Meknes, trees were less advanced and were not affected.

Tunisia: Olive-trees, which had suffered from drought in the centre and south of Tunisia in the last few years, benefited from the winter rains. Their foliage recovered and, where they had not formerly been too seriously affected, an abundant blossom was anticipated at the beginning of May.

Current information on Flax.

Belgium: The growth of flax is retarded owing to the cold weather of April.

France: In spite of the difficulties encountered in sowing owing to the rain and bad weather of April, flax rose rapidly and in excellent conditions. The first half of May, however, being cold and wet, does not seem to have been favourable for crops. It appears that the acreage under cultivation to flax is considerably larger than last year, and would thus reach on extremely high figure, almost double the average of the five preceding years. The increase appears to be due to the measures taken by the Government to encourage cultivation and to the high prices.

Italy: In the first half of April, the germination of flax was good and in the second half of the month growth was normal.

U. S. S. R.: On May 5 the area sown to Dolgunetz flax, i. e. for the production of fibre and grain on collective holdings, which represent practically the entire cultivation of this crop, amounted to 1,753,000 acres, or 40 per cent. of the Plan, against 1,692,000, or 38 per cent. of the Plan, at the corresponding date of last year.

Sowing was finished at this date in Ukraina and 84 per cent. was completed in White Russia.

Canada: According to the official report on farmers' planting intentions at May 1, the area under flax for seed in 1939 will be about 278,000 acres. This compares with a sown area of 221,200 acres in 1938 and with a 1933-37 average of 299,200 acres; percentages, 125.7 and 92.9.

Current information on Cotton.

Greece: The preparation of the land, which had begun in good conditions in January and February, was checked in March by bad weather, which will delay the sowing and growth of cotton. But the return of fine and warm weather in April considerably improved the situation.

Italy: In the first half of April cotton sowing was begun in Southern Italy and Sicily. In the second half of the month sowing was general.

U. S. S. R.: Or May 5, cotton sowing, in spite of unfavourable weather in some cotton zones, was nearly finished. In the Union as a whole 4,773,000 acres had been sown, or 97 per cent. of the Plan, against 4,717,000, or 96 per cent. of the Plan, in the corresponding period of last year. In Tadjikistan, Turkmenistan and Kirghistan the sowing Plan has been fully executed, in Ukraina 99 per cent. and in Uzbekistan 98 per cent. Sowing continued. Crops are growing in good conditions both in the old cotton areas (Central Asia and Transcaucasus) and in the new (Ukraina, Crimea and North Caucasus).

Argentina: The excessive rain of the second half of March and the first decade of April retarded the maturation of cotton bolls and picking operations in the principal producing centres. In the Chaco the condition of plantations at the beginning of April was generally good, except in the west. The picking of early varieties gave low yields of average quality. Plantations in Corrientes and Santiago del Estero were damaged by excess moisture. The condition of plantations was still considered good in the other producing centres of the country.

United States: During the week ended April 19, dry and sunshiny weather was needed in the northern part of the cotton belt for field work. Temperatures were too cold in some of the central parts for good germination, but in most of the eastern portions planting continued active, and some cotton was coming up in Southern Georgia. The progress and condition of the crop in the extreme south and coast plains of Texas remained generally good, but the weather was too dry for growth in the south-western part of the State and for preparations in the west central areas. The progress of planting preparations in the extreme southern part of Oklahoma was slow. In the following week the planting in the eastern part of the belt made

Area and Production of Cotton.

COUNTRIES	AREA					PRODUCTION OF GINNED COTTON							
	1938-39	1937-38	Average 1932-33 to 1936-37	% 1938-39		1938- 1939	1937- 1938	Average 1932-33 to 1936-37	1938- 1939	1937- 1938	Average 1932-33 to 1936-37	% 1938-39	
				1937- 1938	Average 1938							1937- 1938	Average 1938
			ooo acres	= 100	= 100			ooo centals			ooo bales of 478 lb.	= 100	= 100
Bulgaria	136	125	57	109.1	237.7	153	225	98	32	47	21	68.2	155.5
Greece	187	178	95	104.7	195.7	321	361	189	67	75	39	89.0	170.4
Italy	91	54	10	167.5	902.6	209	93	19	44	20	4	224.4	1080.4
*Romania	12	4	3	296.6	452.4	...	11	3	...	2	1	...	...
Yugoslavia	12	7	3	179.4	413.0	27	15	4	6	3	1	180.0	628.7
U. S. S. R.	5,108	5,163	5,017	98.9	101.8	18,409	18,078	10,948	3,851	3,782	2,290	101.8	168.2
United States (1) . .	24,248	34,001	29,962	71.3	80.9	57,092	90,557	56,139	11,944	18,945	11,745	63.0	101.7
Br. West Indies . . .	22	22	14	99.2	155.3	19	25	15	4	5	3	79.9	125.8
*Mexico . . . . .	...	829	495	...	...	...	1,625	1,177	...	340	246	...	...
Argentina	1,005	1,043	691	95.9	145.4	1,433	1,134	1,111	300	237	232	126.3	129.0
Brazil	6,178	6,672	3,762	92.6	164.2	8,972	10,141	6,122	1,877	2,122	1,281	88.5	146.5
*Peru . . . . .	...	388	361	...	...	...	1,797	1,569	...	376	328	...	...
Burma	396	500	454	79.2	87.2	426	600	382	89	126	80	70.9	111.5
Cyprus	9	12	9	73.1	95.7	8	17	9	2	4	2	47.1	87.6
Chosen	577	547	475	105.6	121.7	894	1,017	773	187	213	162	87.9	115.7
India (2)	23,553	25,746	23,912	91.5	98.5	20,480	23,116	21,216	4,285	4,836	4,438	88.6	96.5
Iraq	79	65 (3)	26	121.5	301.0	64	81	13	13	17	3	78.5	481.5
Syria	93	86	51	108.1	181.1	185	123	76	39	26	16	150.1	242.5
Turkey	680	793	478	85.8	142.3	1,462	1,427	834	306	299	174	102.4	175.4
Belgian Congo . . .	990	950	656	103.9	150.7	772	838	508	161	175	106	92.1	151.9
Egypt	1,852	2,053	1,664	90.2	111.3	(4)8,400	10,904	7,672	1,760	2,281	1,605	77.2	109.7
*Kenya	—	—	—	—	—	...	74	47	...	15	10	...	...
Nyasaland	—	—	54	—	—	50	40	38	10	8	8	125.0	130.5
Uganda	1,493	1,759	1,240	84.9	120.4	1,200	1,668	1,190	251	349	249	71.9	100.8
Anglo-Eg. Sudan . .	458	443	379	103.4	123.9	1,224	1,327	923	256	278	193	92.3	132.6
*Tanganyika (5) . .	—	—	—	—	—	188	258	158	39	54	33	73.0	119.6
TOTALS	67,236	80,281	69,009	83.8	97.4	121,800	161,787	108,279	25,484	33,848	22,652	75.3	112.5

* Countries not included in the totals.

(1) See: *Summary of Government Cotton Reports*. — (2) Fifth and last report, referring to the entire cotton area of India. — (3) Season 1936-37. — (4) Unofficial estimate. — (5) Exports.

good to fair advance rather generally. Chopping has begun in Southern Georgia and South Carolina. The progress of the cotton already planted in the lower Mississippi Valley was poor to fair, and much planting and replanting remained undone owing to the coldness of the weather and excessive soil moisture. The progress of planting in Oklahoma was slow. In Texas progress generally was poor, the weather being too cold for proper growth. During the week ending May 3, there was fair to good advance in cotton planting in the eastern part of the belt, extending well to the northern portions. Condition ranged from fair to good, chopping made good advance in South Carolina and fair progress in Southern Georgia. In central parts of the belt planting was well advanced in Louisiana while excellent progress in this work was made in the latter part of the week in Arkansas. In Oklahoma it was too dry for planting and progress was slow. In Texas planting made good advance, but only slow progress in the north-west of the State, as the soil was too dry. During the week ended May 10, mostly cold weather prevailed except in the extreme west,

Summary of the Cotton Reports
issued by the Government of the United States, during
the cotton season (August 1-July 31).

	Provisional estimates for dates indicated 1938-39	Final estimates		Percent. 1938-39	
		1937-38	Average 1932-33 to 1936-37	1937-38 = 100	Aver. = 100
<i>Report referring to July 1:</i>					
Area in cultivation (acres)	26,904,000	34,471,000	32,752,000	78.0	82.1
<i>Report referring to August 1:</i>					
Area left for harvest (acres) 1)	26,347,000	34,001,000	29,962,000	77.5	87.9
Crop condition (per cent. of normal)	78	81	69	—	—
Production 4)	11,988,000	18,945,000	11,745,000	63.3	102.1
Yield of lint per acre, in lb.	217.9	266.9	179.8	81.6	121.3
Cotton ginned to August 1 5)	157,865	142,983	95,516	110.4	165.3
Cotton ginned to August 16 5)	313,934	514,524	318,270	61.0	98.6
<i>Report referring to September 1:</i>					
Area left for harvest (acres) 6)	26,449,000	34,001,000	29,962,000	77.8	88.3
Crop condition (per cent. of normal)	65	75	59	—	—
Production 4)	11,825,000	18,945,000	11,745,000	62.4	100.7
Yield of lint per acre, in lb.	214.1	266.9	179.8	80.2	119.2
Cotton ginned to September 1 5)	1,335,893	1,874,320	1,234,694	71.3	108.2
Cotton ginned to September 16 5)	3,036,564	4,261,165	2,980,657	85.3	122.0
<i>Report referring to October 1:</i>					
Crop condition (per cent. of normal)	66	79	59	—	—
Production 4)	12,212,000	18,945,000	11,745,000	64.5	104.0
Yield of lint per acre, in lb.	221.1	266.9	179.8	82.8	123.0
Cotton ginned to October 1 5)	6,578,399	8,260,071	5,194,093	79.6	126.6
Cotton ginned to October 18 5)	8,930,810	11,066,210	7,564,193	80.7	118.1
<i>Report referring to November 1:</i>					
Production 4)	12,137,000	18,945,000	11,745,000	64.1	103.3
Yield of lint per acre, in lb.	210.7	266.9	179.8	82.3	122.2
Cotton ginned to November 1 5)	10,126,502	13,160,423	9,029,178	76.9	112.2
Cotton ginned to November 14 5)	10,749,913	14,947,111	9,924,039	71.9	108.3
<i>Report referring to December 1:</i>					
Area in cultivation on July 1 (acres)	26,144,000	34,471,000	32,752,000	75.8	79.8
Area left for harvest (acres) 7)	25,346,000	34,001,000	29,962,000	74.5	84.6
Production 4)	12,008,000	18,945,000	11,745,000	63.4	102.2
Yield of lint per acre, in lb.	226.8	266.9	179.8	85.0	126.2
Average gross weight of running bale, lb. 8)	514.2	519.0	509.9	99.1	100.8
Cotton ginned to December 1 5)	11,232,737	16,175,505	10,722,272	69.4	104.8
Cotton ginned to December 13 5)	11,413,837	16,803,013	11,012,934	67.9	103.6
Cotton ginned to January 16 5)	11,553,369	17,644,208	11,310,583	65.5	102.2
<i>Report of March 20:</i>					
Total ginnings throughout the season 5)	11,620,601	18,252,075	11,481,482	63.7	101.2
Equivalent cotton ginned 4)	11,941,702	18,945,028	11,744,520	63.0	101.7
Average gross weight of running bale, lb. 8)	513.8	519.0	(3) 509.9	99.0	100.8
Total number of running bales, excl. linters	11,699,590	18,415,446	11,692,156	63.5	100.1
Including: Sea-island	4,273	4,030	223	106.0	1916.1
American-Egyptian	20,501	10,991	13,454	186.5	152.4
Upland: Round bales	157,979	326,742	421,349	48.3	37.5
Upland: Square bales	11,516,837	18,073,683	11,257,131	63.7	102.3
Linters: running bales . . . . .	...	1,470,528	870,020	...	...
Linters: equiv. 500-pound bales, net weight	...	1,754,516	1,039,882	...	...
Number of gineries: total . . . . .	...	14,285	14,833	...	...
Number of gineries operated	12,279	12,838	13,043	95.6	94.1
Average number of bales ginned per active establishment 5)	946	1,422	879	66.5	107.6
<i>Report of May 25:</i>					
Revised estimates of the cotton crop:					
Area in cultivation, on July 1 (acres)	25,018,000	34,471,000	32,752,000	72.6	76.4
Area picked (acres)	24,248,000	34,001,000	29,962,000	71.3	80.9
Production 4)	11,944,000	18,945,000	11,745,000	63.0	101.7
Yield of lint per acre, in lb.	235.8	266.9	179.8	88.3	131.2
Cottonseed produced (sh. tons)	5,310,000	8,425,500	5,221,400	63.0	101.7

(1) Area in cultivation on July 1 less the ten-year (1928-37) average abandonment 2.1 per cent. — (2) Area actually harvested. — (3) Ten-year (1927-36) average. — (4) In bales of 478 lb. net weight and exclusive of linters. — (5) In running bales, counting round bales as half bales and exclusive of linters. — (6) Total abandonment after July 1: 1.7 per cent. — (7) Abandonment: 3.1 per cent. — (8) Counting round bales as half bales and exclusive of linters.

and north-western portions of the belt. There was a considerable amount of rain in the central and eastern sections, but showers were scattered and largely light in the west. Temperatures in Texas were too low for favourable growth, and rain was needed in most places. In the eastern part of the belt increasing warmth was decidedly favourable. During the week ended May 17, moderate to substantial rains were widespread in the cotton belt. Temperatures were unfavourably low in most of the northern sections. Good progress with planting was made in most sections, though the weather was too cool and wet in some eastern districts during the latter half of the week, and progress was slow in north-western parts of the belt.

Indochina: In March the growth of cotton was normal in Annam. Picking had even begun in Binh-thuân, yielding 270 to 360 lb. of unginned cotton per acre. In Cambodia picking was finished on the red-soil lands, yields being average.

Egypt: Sowing was finished at the end of April, i. e. at the normal time. North of the Delta it is reported to be completed a week earlier than last year. Weather conditions in April were on the whole favourable for the growth of the young plants. The percentage of re-sowing in the country as a whole has not exceeded 3 per cent. Re-sowing was necessary mainly among early crops in Delta South and in Middle Egypt, which were damaged by the changeable weather of March or by parasites. It is estimated that the area planted to cotton is smaller than last year by about 5 per cent. in Lower Egypt and 10 per cent. in Middle and Upper Egypt. The second dressing and irrigation are general, and also thinning and manuring among early and main crops. Crop condition generally is normal.

Cotton ginned up to the end of April in bales of 478 lb. net weight, was as follows:

Varieties	1939	1938	1937	1936	1935	1934	1933
Giza 7	381,945	477,903	391,310	262,504	198,463	91,202	33,738
Sakellaridis	—	92,175	107,764	186,742	207,736	238,967	251,976
Other varieties above:							
1 3/4" (1)	147,082	106,172	92,674	101,043	53,348	111,649	74,949
1 1/4"	44,575	30,710	30,378	43,151	43,940	75,551	72,838
1 1/8"	1,050,421	1,320,395	1,222,804	1,135,246	1,027,953	1,225,546	570,376
Total	1,624,023	2,027,355	1,844,930	1,728,686	1,531,440	1,742,915	1,003,877
Scario	34,041	35,281	42,234	39,895	34,143	33,993	23,100
Total production (including Scario) *	1,760,000	2,281,223	1,887,164	1,768,581	1,565,583	1,776,908	1,026,977

* Unofficial estimate. — (1) Including Sakellaridis.

French Morocco: Cotton sowing was almost finished in April in the Gharb.

Nyasaland: It was reported in March that the cotton crop was making a good recovery after the excessive rains.

Tanganyika: An increase in the acreage cultivated for cotton in the Northern, Tanga and Eastern Provinces was indicated in March. It was also reported that the improved conditions of the cotton crop in the Lake Province gave promise of better yields than at one time anticipated.

Australia: (Queensland) Cotton harvesting began early in March. A yield of between 14,000 and 15,000 bales is expected. Following two unfavourable seasons (about 9,600 bales last year and 8,500 the year before) this good result should help

the industry considerably. Rains in March delayed harvesting to some extent, but little damage was expected to result, except a possible lowering of grades of more advanced crops.

Current information on Hemp.

Italy: In the first half of April hemp germinated well, and in the second half of the month growth was normal.

U. S. S. R.: On May 1 the sowing of southern (Italian) hemp had been carried out on an area of 205,000 acres, or 93 per cent. of the Plan. That of northern (Russian) hemp only on an area of 108,000 acres, or 9 per cent. of the Plan.

Current information on Hops.

Yugoslavia: At the beginning of May the pruning of hops was largely finished. Spring cultivation was in full swing. Early pruned crops are growing very well. The weather is favourable for growth.

Current information on Tobacco.

Greece: In Eastern Macedonia and Thrace, the germination of the seedlings took place in most areas under very favourable conditions in the first decade of April, except in the Department of Serrès and the mountains, where bad weather delayed germination until the third decade of the month. The growth of young plants continued normally; in the country they had reached a height of one and a half inches. During April, hoeing was carried on and also the second and third ploughing of the land under tobacco. In some parts, the appearance of "*Grylotalpa Vulgaris*" was reported over a fairly wide area and elsewhere of "*Phytophthora Nicotiana*". Treatment was applied in good time. Certain delay occurred in Central Macedonia owing to a snowfall during the second half of March and subsequent bad weather with low temperatures and frosts. The damage done was repaired by re-sowing where necessary with the assistance of a rise in temperature. In Western Macedonia, owing to the mountainous ground and bad weather, sowing was delayed until the beginning of March and was subsequently widespread and completed towards the end of the month, except in certain exceptional cases where seedlings were destroyed and the ground had to be resown up to the first decade of April. The "*Grylotalpa Vulgaris*" also did fairly serious damage this year to seedlings. In Thessaly and Phthiotis and Phokis, germination and growth of young plants was not normal, owing to bad weather which destroyed a good number of seedlings. Growth is proceeding more or less slowly owing to low temperature so that transplantation will be rather late. The condition of the plants is, in most cases, very good.

Italy: The weather in the first half of April was very favourable for transplanting tobacco. Transplantation proceeded also in the second half of the month.

Cyprus: A crop report for March states that the weather was unsettled during the month. The condition of seed beds was good however and transplanting was expected to begin early in April.

Indochina: In March picking of the leaves proceeded throughout the colony. Yields were fairly satisfactory in Annam and Cambodia and average in CochinChina.

Nyasaland: Harvesting on Native Trust Lands took place during March, the main picking in the Palombe areas beginning on March 15. The crop in the Central

Division was satisfactory, considering the unfavourable weather, and the Native Trust Land crop appeared to be more free from disease than the European and tenant-grown. In the Northern Province dry, sunny weather was experienced in the last twelve days of the month and the crop improved rapidly, but a large out-turn is not expected.

Southern Rhodesia: According to the March report on crop conditions in Southern Rhodesia, fine dry weather during the last week of the month ended the prolonged spell of incessant rains and sunless days. It is, however, unlikely that the improvement in the weather will have made any significant change in the total production of flue-cured or fire-cured leaf, as the bulk of the crop was harvested before the improvement could benefit the growth. Development of the Turkish-type crop was retarded by the continual rain and dull weather. It is hoped, however, that the later plantings will have benefited to some extent from the warm, dry weather that came at the end of March. No estimates of area or production are yet available, but a considerable increase in acreage over last season is reported.

Tanganyika: It was reported in March that the present season had been unfavourable for tobacco, in Iringa, the rains having come too late and being likely to cause disease in early plantings. In Songea, also, the transplanting of tobacco was delayed by dry conditions, and only a slight increase in production over 1938 was anticipated. The yield of tobacco in Biharamuho, where harvesting was commencing, was not expected to reach that of last year.

Current information on Other Products.

Cacao.

Grenada: It was reported in March that the cacao crop, which was nearly over, would be short.

Gold Coast and Togoland under British Mandate: MAIN CROP 1938-39. — By the end of March the crop was practically finished, very little cacao remaining to be marketed. The total exports for the six months October 1938 to March 1939 amounted to 453.8 million lb., including 31.3 million lb. carry over; net exports of the new crop were therefore 422.5 million lb. The quantity marketed during March was 31.3 million lb. bringing the total for the season to 612.6 million lb. distributed as follows: September 4.5, October 31.3, November 97.4, December 165.8, January 192.7, February 89.6, March 31.3. The stocks at the end of March were 190.2 million lb., including 107.8 at Ports and 82.4 at Up-Country centres. The crop situation on March 1 may be summarized as follows:

Already exported	422.5 million lb.
Stocks	190.2 " "
In farmers' hands	2.2 " "
<i>Total</i>	<i>614.9 million lb.</i>

The estimated total purchases at up-country centres give an aggregate total much below this figure.

The mean purity of farmers' cacao examined during March was 84.3 per cent., this low level not being abnormal for the last lots marketed at the end of the season. The effects on the general level is negligible as the small quantity handled can be subjected to re-conditioning before export.

The grade percentages from the farmers' lots, firms' grading, and check sampling at ports are summarized below.

Grade per cent. during March 1939.

	Farmers' cacao (360 lots)	Original sampling (44,244,000 lb.)	Check sampling at ports (80,734,000 lb.)
I	24.2	40.5	39.5
II	32.4	48.8	50.3
III	28.6	10.2	9.9
Sub-grade	14.8	0.5	0.3
	100.0	100.0	100.0

The average number of beans in the standard 14 cubic inches space bean count for all ports during March was 126.3.

MID CROP 1939. — The weather was generally favourable for the development of the mid crop and a few pods of all sizes were seen in the farms. Harvesting was beginning in some areas, but the bulk of the crop was expected to be ripe in June and July, decreasing in August and merging into the following main crop. In Ashanti and the Western Province small amounts were anticipated; the Central Province estimate was 6.7 million lb.; 26.9 million lb., forming the bulk of the crop, was expected from the Eastern Province; the Trans-Volta Area crop was estimated at about 4.5 million lb.

CROP ESTIMATES. — At a meeting of the Cacao Crop Estimates Committee held in Accra on April 11, 1939, the estimate for the main crop 1938-39 was increased to 270,000 long tons (604.8 million lb.). A preliminary estimate of the mid crop 1939 was given as 18,000 long tons (40.3 million lb.).

MOVEMENT. — Movement statistics for March were as follows:—

	March 1939 (thousand pounds)	March 1938
Railway off-loadings, Takoradi	21.4	0.9
Exports:—		
Takoradi	26.9	2.3
Accra	43.9	4.0
Other ports	15.7	3.9
<i>All ports</i>	<i>86.5</i>	<i>10.2</i>
Eastern Frontier	1.1	0.0
<i>Total exports</i>	<i>87.6</i>	<i>10.2</i>

Tea.

U. S. S. R.: Tea picking has begun in Georgia, where almost the entire production of the U. S. S. R. is concentrated. It is estimated that the production of green leaf this year will amount to 95,000,000 lb. an increase of 14 per cent. on the 77,000,000 lb. harvested in 1938.

Inaochina: In March tea picking had begun in Tonkin. The crop was poor on newly pruned plantations. In Annam growth was satisfactory.

Japan: The tea crop was in normal condition in May.

Nyasaland: Reports in March indicated that tea was doing well, and growers expressed the opinion that the season would be profitable.

World Statistical Situation of Coffee.

I. World Production of Coffee.

From the point of view of world production the 1938-39 coffee season was characterized in the principal producing countries as a whole by weather conditions rather unfavourable to the crop, and in some important areas by attacks of disease reducing the volume of production. In addition, in some countries, especially in Venezuela, owing to the exceptional low price on the international market, growers abandoned part of their crop. In consequence of these unfavourable factors, world production in 1938-39, according to official estimates and the information at present available and the probable volume of the crops in the countries that have not indicated their estimates, has been distinctly small. Its volume is estimated at 5,011 million lb., the smallest for many years, apart from the exceptionally low figure of 1935-36; it is 465 million lb. below the figure of last season and 331 million below the average for the preceding five years.

In particular the contributions of the various continents to world production in the current season show a reduction with reference to 1937-38, except in Africa, and similar reduction on the five-year average. The most pronounced decrease in absolute figures is in South America, where the total crop is scarcely 3,777 million lb. against 4,206 million in 1937-38 and 4,120 million on the average for the preceding five years.

In Brazil the weather was rather unfavourable to the crop and the exhaustion of the soil in some districts, the damage caused by «Stephanadores» and still more the voluntary reduction by the growers, are the principal factors in the decrease generally reported with respect to the past season, for which an official estimate is still lacking. Taking account of these unfavourable factors and of the abandonment of about 250,000 acres since 1937-38, Brazilian production in 1938-39 may be estimated at 3,086 million lb. against 3,413 million lb. in the past season and 3,385 million on the five-year average. The figures for the export surplus of 1938-39, calculated by the «Departamento Nacional do Café», is 2,893 million lb. only, in consequence of the poor years, of which 1,952 million are derived from the State of São Paulo, 522 million from the State of Minas Geraes, 145 million from the State of Espírito Santo, 124 million from the State of Rio de Janeiro, 150 million from the States of Paraná, Bahia, Pernambuco and Goiás.

To this quantity there must be added for the current commercial season the stocks remaining from the 1937-38 crop in the States of São Paulo and Minas Geraes, amounting to 238 million lb. The total exportable quantity for the current commercial season is thus 3,131 million lb. against 3,368 million for the preceding season.

The crop obtained in 1938-39 in Colombia (562 million lb.), which is the second largest producer and exporter of coffee may be considered as abundant, since it approaches the record of 1937-38 and exceeds the previous five year

World Production of

CONTINENTS	1938-39		1937-38		Average 1932-33 to 1936-37	
	Absolute data	Pro-portion of world pro-duction	Absolute data	Pro-portion of world pro-duction	Absolute data	Pro-portion of world pro-duction
	(000 lb.)	%	(000 lb.)	%	(000 lb.)	%
World production	5,011,124	100.0	5,476,301	100.0	5,341,819	100.0
America :						
Central and North.	612,887	12.2	632,729	11.6	648,602	12.2
South	3,776,531	75.4	4,206,434	76.8	4,120,454	77.1
Total	4,389,418	87.6	4,839,163	88.4	4,769,056	89.3
Asia	(1) 282,193	5.6	346,127	6.3	312,617	5.9
Africa	326,285	6.5	277,783	5.1	246,918	4.6
Oceania	13,228	0.3	13,228	0.2	13,228	0.2

(1) Estimated production.

average by 46 million lb. In this country, apart from annual oscillations due to weather conditions more or less favourable to the crop, the volume of production generally shows a tendency to increase, which has for several years been considerable.

The exceptionally small crop obtained in Venezuela was scarcely half that of the preceding season, which fairly closely approached the average. The causes of this heavy reduction must be looked for in the rather unfavourable weather generally and still more in the particular economic situation of this country, where the exchange rates and wages are very high, both these elements having a heavy influence on the cost of production of coffee, placing it at a level much above the prices on the international market. Altogether total production of coffee in South America in 1938-39 (3,777 million lb.), in consequence of the poor crops obtained in Brazil and Venezuela, shows a very appreciable diminution on both the 1937-38 production (10.2 per cent.) and the average for the preceding five years (8.3 per cent.). The proportion of the production in 1938-39 of all the South American coffee producing countries with reference to the world production is 75.4 per cent. against 76.8 last season and 77.1 during the five-year average.

In Central America the weather at the time of flowering and during the different phases of vegetation in the present season has not, on the whole, been very good. The available figures for actual production of coffee in 1938-39

Coffee by Continents.

1936-37		1935-36		1934-35		1933-34		1932-33		Average 1927-28 to 1931-32	
Absolute data	Proportion of world production	Absolute data	Proportion of world production	Absolute data	Proportion of world production	Absolute data	Proportion of world production	Absolute data	Proportion of world production	Absolute data	Proportion of world production
(ooo lb.)	%	(ooo lb.)	%	(ooo lb.)	%	(ooo lb.)	%	(ooo lb.)	%	(ooo lb.)	%
5,668,104	100.0	4,574,607	100.0	5,476,301	100.0	5,687,945	100.0	5,302,135	100.0	4,894,279	100.0
723,119	12.8	685,640	15.0	588,636	10.8	570,999	10.0	674,617	12.7	593,045	12.1
4,318,870	76.2	3,291,513	71.9	4,332,098	79.1	4,605,472	81.0	4,054,315	76.5	3,842,670	78.5
5,041,989	89.0	3,977,153	86.9	4,920,734	89.9	5,176,471	91.0	4,728,932	89.2	4,435,715	90.6
328,490	5.8	306,444	6.7	299,830	5.5	286,602	5.0	341,718	6.4	299,830	6.2
284,397	5.0	277,783	6.1	242,509	4.4	211,644	3.8	218,258	4.1	147,710	3.0
13,228	0.2	13,228	0.3	13,228	0.2	13,228	0.2	13,228	0.3	11,023	0.2

and the estimates of the export surplus from several countries reflect, in their reduction from the past season and from the average, these rather unfavourable weather conditions.

Area of Coffee in production in Brazil by States.

(ooo acres).

YEARS	Sao Paulo	Minas Geraes	Espirito Santo	Rio de Janeiro	Other States	TOTAL
1925-26.	3,761	1,539	509	514	561	6,884
1926-27.	3,820	1,577	613	519	610	7,139
1927-28.	4,142	1,616	620	541	620	7,539
1928-29.	4,441	1,651	642	549	675	7,958
1929-30.	4,557	1,710	667	554	756	8,244
Average 1925-26 to 1929-30	4,144	1,619	610	535	644	7,552
1930-31.	4,698	1,787	684	568	791	8,528
1931-32.	5,160	1,789	687	571	818	9,025
1932-33.	5,565	1,999	734	689	825	9,812
1933-34.	5,696	1,979	672	741	697	9,785
1934-35.	4,465	1,972	670	741	697	8,545
Average 1930-31 to 1934-35	5,117	1,905	689	662	766	9,139
1935-36.	4,915	1,977	647	647	610	8,796
1936-37.	4,735	1,977	650	647	546	8,355
1937-38.	4,695	1,952	650	618	494	8,409
1938-39. . . . .	...	...	...	...	...	8,155

In Salvador production in 1938-39 exceeds by about 20 million lb. the poor crop of the preceding season, which was seriously damaged by the unfavourable weather, and approaches fairly closely the average, without, however, attaining the level that would be expected from the great extension of the area.

Production of Coffee in the principal producing Countries.

(ooo pounds).

COUNTRIES	1938-39	1937-38	Average 1932-33/ 1936-37	1936-37	1935-36	1934-35	1933-34	1932-33	Average 1927-28/ 1931-32
<i>I. — American Countries.</i>									
Brazil	*3,086,482	3,412,547	3,385,298	3,476,702	2,504,239	3,643,151	3,916,746	3,385,650	3,211,705
Colombia	562,181	589,959	516,457	576,731	555,126	463,193	507,948	479,287	422,848
Salvador	132,278	112,877	138,583	166,009	127,869	130,073	127,869	141,096	139,553
Venezuela	66,139	132,278	127,604	157,852	140,214	125,223	106,043	108,688	134,482
Guatemala	119,050	125,664	110,540	147,710	121,255	94,358	79,367	110,011	106,704
Mexico	81,571	88,185	96,034	103,177	107,145	92,374	81,130	96,342	85,760
Haiti (1)	55,116	55,336	68,608	54,675	79,587	41,888	74,957	91,933	67,682
Cuba	67,682	72,312	71,122	69,005	82,233	69,887	67,021	67,462	58,202
Dominican Republic . .	47,400	61,509	48,899	58,423	53,793	40,786	43,431	48,061	31,085
Costa Rica (1)	46,297	55,116	52,426	58,423	46,959	53,352	42,108	61,289	45,636
Nicaragua (1)	29,763	30,865	33,334	34,392	28,881	40,786	32,408	30,203	31,085
Puerto Rico	19,842	17,637	13,316	18,078	20,062	7,937	9,039	11,464	12,566
<i>Total of American countries</i>	<i>4,313,801</i>	<i>4,754,285</i>	<i>4,662,221</i>	<i>4,921,177</i>	<i>3,867,363</i>	<i>4,803,008</i>	<i>5,088,066</i>	<i>4,631,486</i>	<i>4,347,308</i>
<i>II. — Non-American Countries.</i>									
Netherlands Indies:									
European plantations	98,988	137,569	127,604	111,113	121,916	141,758	125,003	138,230	116,404
Native plantations (1)	130,073	153,442	131,660	164,245	122,577	107,586	109,570	154,324	129,853
India	35,274	37,479	35,142	33,951	41,227	32,849	34,613	33,069	33,951
Italian East Africa (Ethiopia) (2) *	33,069	28,660	43,079	31,967	43,652	49,384	35,715	54,675	39,463
Tanganyika (1)	33,069	30,424	31,129	27,117	41,668	33,069	28,440	25,353	20,944
Kenya	37,479	36,817	38,052	44,974	48,722	30,865	29,983	35,715	24,030
Angola	39,683	31,526	36,553	33,069	35,274	40,345	41,447	32,629	26,235
Madagascar	65,037	47,400	42,946	61,730	46,297	33,069	35,274	38,361	19,180
Belgian Congo	57,320	43,211	27,999	39,904	31,526	29,322	22,046	17,196	9,921
<i>Total of Non-American countries</i>	<i>529,992</i>	<i>546,528</i>	<i>514,164</i>	<i>548,070</i>	<i>532,859</i>	<i>498,247</i>	<i>462,091</i>	<i>529,552</i>	<i>419,981</i>
<i>Grand total</i>	<i>4,843,793</i>	<i>5,300,813</i>	<i>5,176,385</i>	<i>5,469,247</i>	<i>4,400,222</i>	<i>5,301,255</i>	<i>5,550,157</i>	<i>5,161,038</i>	<i>4,767,289</i>

* Unofficial estimate. — (1) Exports. — (2) Export figures compiled from the statistics of French Somaliland and Anglo-Egyptian Sudan.

The crop in Guatemala in 1938-39 may be considered as abundant, since it exceeds by about 9 million lb. the average of the five years ending 1936-37, without, however, attaining the exceptionally high figure of 1936-37. With respect to the preceding season the decrease is only 7 million lb.

The information available for Mexico indicates a somewhat small crop, below the already small one of last season. It should be about the same size as that obtained in 1933-34. which was exceptionally small.

The estimates of the surplus exportable from Haiti during the commercial season of that country, which ends on September 30, 1939, indicates a figure coinciding with that of actual exports in the past season (55 million lb.), though

13 million lb. below the average export of the preceding five years. This year's reduction may be attributed to the unfavourable weather in the principal producing districts.

The crop in Cuba, estimated at 68 million lb. by the "Instituto Cubano de Estabilización del Café" approaches fairly closely the figures of last season and the average, oscillating around 71 million lb. The slight decrease is due almost exclusively to the Province Oriente, which is responsible for nearly 95 per cent. of the total crop.

The production estimated for 1938-39 in the Dominican Republic is very near the five-year average ending in 1936-37 though much below last season's maximum of 62 million lb.

Finally, in consequence of the damage due to excessive rain, the estimates of export surplus in Costa Rica and Nicaragua for 1938-39 show a decrease, particularly marked for the former country, with respect to both the actual exports of last season and the average.

Altogether, the production of coffee in Central America in 1938-39, estimated at 613 million lb., can only be regarded as mediocre since it remains 20 million lb. below last year's figure and more than 35 million lb. below the five-year average. Nevertheless the proportion of total production of these countries to world production is 12.2 per cent., exactly the same as that of the five-year average ending in 1936-37 and slightly above that of the last season. The American continent as a whole supplied in 1938-39 87.6 per cent. of the world production against 88.4 last season and 89.3 per cent. on the average for the preceding five years.

In Asia the results of the present season have been distinctly small; the total production is estimated at 282 million lb., i. e. 66 million lb. (18.5 per cent.), below the 1937-38 figure and about 31 million (9.7 per cent.) below the five-year average. The reasons for this exceptional contraction may be found both in the unfavourable weather and in the abnormal situation on the international market.

In the Netherlands Indies, which normally supplies four fifths of the total production of Asia, the crops both on European plantations and on Native plantations show a heavy decrease, more marked on European plantations. In fact the crop from these plantations is 28 per cent. smaller than that of last season and 22.5 per cent. below the average of the preceding five years; on the other hand the reduced production of Native plantations is only 15.2 per cent. and 1.2 per cent. respectively. The information available for India leads to the expectation of an average crop, about 35 million lb., slightly smaller than that of 1937-38. The proportion of the production of Asia to the world total in 1938-39 is 5.6 per cent. against 6.3 per cent. in 1937-38 and 5.9 per cent. in the five-year average.

Africa is the only continent in which the total production of coffee in 1938-39 shows a fairly appreciable increase with respect to the preceding year. After a progressive annual increase the production of this continent in 1938-39 attained the maximum of 326 million lb., thanks partly to the various protective measures accorded to native planters and to preferential tariffs given by the majority of

the countries with colonial possessions. The increase shown by this year's crop is 49 million lb. or 17.5 per cent. with respect to 1938-38 and 57 million lb. or 32.1 per cent. with respect to the average. The proportion of the production of this continent with respect to the world total has risen from 4.6 per cent. on the average of the five years ending 1936-37 to 5.1 per cent. in 1937-38 and 6.5 per cent. in 1938-39.

International Trade in Coffee.

Exports from the principal Exporting Countries. — The most interesting and without doubt by far the most important aspect of the current coffee season is the commercial one, owing to the evolution of the international trade in the product following the new monetary and commercial regime adopted by Brazil at the beginning of November 1937. In face of the increasingly marked contraction in its exports of coffee and the steady increase in those of "mild sorts", Brazil on November 3, 1937 abandoned its policy of valorization of the product and returned to the regime of free competition, already attempted in 1933 but soon abandoned. The principal object of this reversal of Brazilian coffee policy was the increase of its exports to the highest level. The corollary of this new commercial regime was the price war. The principal measures adopted by the Brazilian Government to realize its programme of commercial expansion for coffee have been the reduction of the export tax from 45 to 12 milreis per bag of 60 kg., the abandonment of the unilateral defence of prices, the abolition of all Government intervention on the market, the suspension of restrictions on the exchanges and on trade in foreign currency, and the re-establishment of free trade. Since then the coffee battle has continued without ceasing and, despite already considerable developments, it is not possible to foresee with any exactitude its final results owing to the numerous factors intervening in the struggle.

Brazil: Production and Exports of Coffee by commercial season.

(ooo pounds).

Season (1 July-30 June)	Production	Exports			Percentage of production
		First half-year	Second half-year	TOTAL	
					%
1929-30	3,475,820	1,021,846	972,903	1,994,749	57.4
1930-31	3,602,586	1,049,404	1,268,544	2,317,948	64.3
1931-32	2,869,767	1,092,615	928,149	2,020,764	70.4
1932-33	3,385,650	650,586	956,368	1,606,954	47.5
1933-34	3,916,746	1,088,426	1,008,839	2,097,265	53.5
<i>Average 1929-30 to 1933-34</i>	<i>3,450,114</i>	<i>980,575</i>	<i>1,026,961</i>	<i>2,007,536</i>	<i>58.2</i>
1934-35	3,643,151	862,451	911,174	1,773,625	48.7
1935-36	2,504,239	1,116,425	943,361	2,059,786	82.3
1936-37	3,476,702	932,999	820,784	1,753,783	50.4
1937-38	3,412,547	782,864	1,150,596	1,933,460	56.7
1938-39	3,086,482	1,120,834	(1) 480,168	...	...

(1) January-March 1939.

While the international coffee market is dominated by this new trade orientation imposed by Brazil, it is interesting to examine the situation with more precision and particularly the movement of exports from the two principal protagonists, Brazil and Colombia.

In Brazil the exports of the first half of the 1937-38 season (July 1-December 31 1937), which is the last period of the coffee valorisation policy, fell to the lowest level for many years, except in those of the corresponding half-year of 1932-33, when movements of the crop were disturbed by the Paulista Revolution of 1932: scarcely 783 million lb. against 981 million lb. on the average ending 1933-34 and 1,116 million lb. and 933 million lb. respectively in the same period of the season 1935-36 and 1936-37.

Movement in the second half of the 1937-38 season (January 1-June 30 1938), was on the contrary very active, thanks to the new commercial policy adopted by Brazil, exports attaining the figure of 1,151 million lb., which distinctly exceeds the corresponding exports in a long series of years except for the maximum export for 1930-31.

With respect to the corresponding figure of the preceding season the exports of the latter half year show an increase of about 330 million lb. Nevertheless the total exports of 1937-38 estimated at 1,993 million lb., exceeds the 1,754 million lb. exported in 1936-37, though it remains below the average exports for the five years ending 1933-34 (2,008 million lb.). In the first half of 1938-39 (July 1-December 31 1938) Brazilian exports remained at an exceptionally high level, attaining 1,121 million lb., a figure slightly exceeding the maximum of the same period in 1935-36 (1,116 million lb.). Exports in the first quarter of the current year (January 1-March 31 1939) show on the contrary, a fairly appreciable reduction with respect to the corresponding figure of last year: 480 million lb. against 559 million lb. It must however, be noted that despite the fact that the total exports of the first nine months of the current commercial season (July 1 1938-March 31 1939), with 1,601 million lb., exceeds by about 265 million lb. the quantity exported in the same period of the preceding season, the figures of monthly exports show a tendency to decrease. In fact the average monthly export in the second half of 1937-38, which was 192 million lb., fell to 187 million lb. in the first half of 1938-39 and to 160 million in the first quarter of 1939.

Total exports of Colombia in the commercial season 1937-38 (July 1 1937-June 30 1938), were 532 million lb., exceeding by more than 110 million lb. the average exports of the five years ending 1933-34 and approaching fairly closely to the maximum of the preceding season. In this connection it should be observed that the exports in the second half of 1937-38 (January 1-June 30 1938), that is, in the full tide of the commercial war, attained a maximum of 283 million lb. exceeding by 11 million lb. the already high figure of the preceding season.

During the first half of the current commercial season (July 1-December 31 1938) the export of coffee from Colombia attained a new maximum of 283 million lb. against 252 million lb. in the same period 1937-38. Amongst the favourable factors contributing to the increase in Colombian exports, especially in 1938,

Colombia: Production and Exports of Coffee by commercial season.

(ooo pounds)

Season (July 1-June 30)	Production	Exports			Percentage of production
		First half-year	Second half-year	Total	
1929-30	464,295	186,732	214,070	400,802	86.3
1930-31	445,335	194,228	202,605	396,833	89.1
1931-32	447,319	196,433	202,165	398,598	89.1
1932-33	479,287	218,920	223,990	442,910	92.4
1933-34	507,948	210,101	248,241	458,342	90.2
<i>Average 1929-30 to 1933-34 . . .</i>	<i>468,837</i>	<i>201,283</i>	<i>218,214</i>	<i>419,497</i>	<i>89.5</i>
1934-35	463,193	167,552	246,037	413,589	89.3
1935-36	555,126	254,855	250,666	505,521	91.1
1936-37	576,731	273,154	268,965	542,119	94.0
1937-38	589,959	251,769	279,988	531,757	90.1
1938-39	562,181	283,074	(1) 116,625	...	...

(1) January-March 1939.

is the small amount of available "Milds" for export, in consequence of the poor crops obtained in 1937-38 in Salvador and some other producing countries of Central America. The exports of the first three months of the current year (January 1-March 31 1939), estimated at 117 million lb., shows on the contrary a decrease of 33 million with respect to the corresponding figure of last year. However, the total quantities of coffee exported in the first nine months of the current commercial season (July 1 1938-March 31 1939) shows a decrease of scarcely 11 million lb. on the corresponding figure of the preceding season.

The movement of coffee from the other countries producing "Milds" in Central America in the first half of the current commercial season shows on the whole with respect to the same period of 1937-38 a fairly appreciable decrease in consequence of the fall in exports from Salvador, Venezuela, the Dominican Republic and Costa Rica.

The exports from Netherlands Indies were also heavily reduced in the first half of the current season, but those from India showed a slight increase with respect to the same period of the preceding season. Finally all the producing countries of Africa except Tanganyika increased their exports in the first half of the season, thanks to the preferential customs regime that is enjoyed by the colonial possessions of the majority of European colonial powers.

World net Coffee Imports. — The world net import of coffee in 1938, estimated at 3,801 million lb., exceeds by 473 million lb. the figure of last year, which approximates fairly closely to the average net imports of the five years ending 1936. With respect to the maximum of 1935 (3,528 million lb.) the increase of last year is over 270 million lb. Europe and the United States, which are by far the principal markets, raised their net imports of coffee to an exceptionally high level in 1938. However, the proportion of this increase registered in Europe remains very much below that registered in the United States. The net import

of coffee into Europe, with annual oscillations that are on the whole of little importance, remained almost unchanged in the ten years 1927-36, the average of the two five year periods ending respectively in 1931 and 1936 were of the same size (1,460 million lb.). In 1937 there was an increase of about 40 millions in the net imports of this continent with respects to the preceding year. The already high figure of 1937 was in turn exceeded by about 126 million lb. in 1938, which also showed, with 1,645 million lb., an absolute maximum in the supplies absorbed by that continent.

World net Imports of Coffee.

Years	Europe		United States of America		Other countries		Total	
	Absolute data	Percentage of total	Absolute data	Percentage of total	Absolute data	Percentage of total	Absolute data	Percentage
	(ooo lb.)	%	(ooo lb.)	%	(ooo lb.)	%	(ooo lb.)	%
1938	1,645,315	43.3	1,978,876	52.1	176,370	4.6	3,800,561	100.0
1937	1,519,431	45.7	1,687,203	50.7	125,255	3.6	3,327,889	100.0
<i>Average 1932-1936 . . .</i>	<i>1,461,097</i>	<i>43.7</i>	<i>1,611,981</i>	<i>48.3</i>	<i>266,540</i>	<i>8.0</i>	<i>3,339,618</i>	<i>100.0</i>
1936	1,479,527	42.2	1,735,044	49.4	296,302	8.4	3,510,873	100.0
1935	1,487,905	42.2	1,752,901	49.7	287,263	8.1	3,528,069	100.0
1934	1,444,694	45.0	1,519,211	47.3	249,123	7.7	3,213,028	100.0
1933	1,448,442	44.2	1,570,137	47.8	261,690	8.0	3,280,269	100.0
1932	1,444,915	45.7	1,482,614	46.8	238,321	7.5	3,165,850	100.0
<i>Average 1927-1931 . . .</i>	<i>1,463,874</i>	<i>44.9</i>	<i>1,524,943</i>	<i>46.7</i>	<i>272,933</i>	<i>8.4</i>	<i>3,261,750</i>	<i>100.0</i>
<i>Average 1909-1913 . . .</i>	<i>1,269,646</i>	<i>54.2</i>	<i>857,601</i>	<i>36.6</i>	<i>216,054</i>	<i>9.2</i>	<i>2,343,301</i>	<i>100.0</i>

1) Calculated figure.

In the United States where the import of coffee is not subject to customs duties, supplies absorbed in 1938 reached a still larger figure, and, like those of Europe, attained an absolute maximum with 1,979 million lb. This figure exceeded in fact, by more than 290 million lb. the net imports of 1937 and by about 370 million lb. the average of the five year of period ending 1936. In 1938 the United States thus absorbed 52.1 per cent. of the world net imports, against 50.7 per cent. in the preceding year and 46.7 per cent. and 48.3 per cent. on the average of the five-year periods ending respectively in 1931 and 1936. On the contrary, Europe imported in 1938 43.3 per cent. of the world total, a figure that, despite the very appreciable increase in absolute value, remains below not only the proportion of the preceding year (45.7 per cent.) but also the proportion of the two preceding five year averages (43.7 per cent. 44.9 per cent.). Finally, the net imports of the rest of the world, which in the above table has been grouped under Other countries, was estimated in 1938 at 176 million lb., an increase of 51 million lb. on the 1937 figure. Nevertheless the total imports of these countries of which the consumption is very limited remains more than one third below the almost identical figures of the two five year periods ending respectively 1931 and 1936.

Examining in detail the net imports of coffee of each of the seventeen European countries shown in the following table, which in 1938 absorbed 98 per cent. of the total imports of the continent, it may be observed that save in Italy, which in 1938 decreased its net imports with respect to the previous year and in Belgium and the United Kingdom, which maintained them at the 1937 level, all these countries increased their purchases of coffee. The most marked increase was in Germany of which the net import in 1938 (not including Austria) was 435 million lb. against 392 million lb. in the preceding year, which was a postwar maximum. With reference to the almost identical figures of the two five year averages ending respectively 1931 and 1936 (315 million lb.), the net imports

Net imports of coffee into the principal European and extra-European countries
(1,000 pounds).

COUNTRIES	1938	1937	Average 1932 to 1936	1936	1935	1934	1933	1932	Average 1927 to 1931
<i>I. — Principal European countries.</i>									
Germany	435,194	391,983	314,336	342,379	325,403	332,238	285,720	285,941	315,703
Austria	17,858	11,464	12,567	11,464	11,685	11,905	11,244	16,535	19,842
Belgium	108,027	108,027	104,764	114,200	107,586	104,940	87,524	109,570	98,326
Denmark	75,398	59,305	57,232	59,745	55,336	57,541	58,864	54,675	58,643
Spain	33,069 ¹⁾	39,683	51,677	48,502	52,470	55,116	53,793	48,502	52,029
Finland	57,761	45,636	37,743	48,281	37,920	37,479	35,054	29,983	39,022
France	410,943	408,518	412,045	411,163	415,573	388,676	432,769	412,045	380,740
Italy	78,485	83,776	84,437	70,107	89,067	86,642	86,421	89,949	101,193
Norway	42,549	36,376	37,038	35,495	44,313	35,495	35,715	34,172	37,038
Netherlands	100,090	80,469	81,483	68,344	71,650	75,619	107,806	83,996	79,587
Poland	13,448	12,346	14,815	13,889	13,007	14,991	16,755	15,432	16,976
Portugal	12,346	10,582	10,715	11,244	11,905	11,685	10,362	8,378	9,480
United Kingdom	31,306	31,967	35,054	31,306	27,558	33,731	35,274	47,400	39,683
Sweden	116,184	104,279	98,679	102,736	106,704	100,090	99,208	84,658	98,547
Switzerland	38,140	29,763	34,745	33,290	41,006	30,203	25,574	43,652	29,983
Czecho-Slovakia	25,574	24,251	25,618	24,912	24,692	24,471	20,503	33,510	30,203
Yugoslavia	15,873	14,551	14,507	15,212	14,551	12,787	14,771	15,212	20,724
<i>Total of countries considered . . .</i>	<i>1,612,245</i>	<i>1,492,976</i>	<i>1,427,455</i>	<i>1,442,269</i>	<i>1,450,426</i>	<i>1,413,609</i>	<i>1,417,357</i>	<i>1,413,610</i>	<i>1,427,719</i>
<i>II. — Principal non-European countries.</i>									
United States	1,978,876	1,687,203	1,611,981	1,735,044	1,752,901	1,519,211	1,570,137	1,482,614	1,524,943
Canada	42,770	37,920	34,392	39,463	34,172	34,172	33,510	30,644	28,440
Argentina	61,289	50,045	45,944	49,163	49,825	40,565	51,368	38,801	53,793
Algeria	34,613	32,188	31,129	34,172	31,306	29,101	30,865	30,203	25,794
Union of South Africa	37,258	30,203	28,440	31,085	31,306	26,896	28,440	24,471	29,101
Japan	9,921	17,196	7,407	12,125	7,055	6,393	5,291	6,173	3,748
<i>Total of countries considered . . .</i>	<i>2,164,727</i>	<i>1,854,755</i>	<i>1,759,293</i>	<i>1,901,052</i>	<i>1,906,565</i>	<i>1,656,338</i>	<i>1,719,611</i>	<i>1,612,906</i>	<i>1,665,819</i>
Total of both groups.	3,776,972	3,347,731	3,186,748	3,343,321	3,356,991	3,069,947	3,136,968	3,026,516	3,093,538

¹⁾ Calculated figure.

of that country in 1938 rose by about 120 million lb., thus slightly exceeding the average level of pre-war imports.

The net imports of France, which now takes the second place amongst European importers, were maintained in 1938 within the limits of the quotas,

which for some years have oscillated around 419 million lb., with an increase of about 8 million with respect to the preceding year (411 million lb. against 409 million in 1937). The most notable fact in regard to the supplies available for that country is the increasing proportion of coffee coming from the colonies, for which the figures rose from 42 million lb. in 1936 to 88 million in 1937 and 132 million in 1938. The contribution of colonial coffee to the supplies of the metropolitan country in 1938 thanks to the colonial preference of 202 Frs. per 50 kilograms and to the action of the Committee for Price Control in favour of mixing, thus reached almost one-third of the net imports of France, reducing by an appreciable amount the supplies from other countries. It should be observed that the first place amongst the French colonies is taken by Madagascar, which in 1938 supplied 78 million lb. against 56 million in the preceding year and 44 million in 1936. French West Africa follows with an equally important increase: 13 million lb. in 1936, 19 million in 1937 and 30 million in 1938. The supplies from other colonies and territories under mandates also show in the last few years a fairly marked tendency to increase.

Net imports of Italy, which in 1937 were maintained at the same level as the five years ending in 1936 (84 million lb.) decreased slightly in 1938. However, with respect to the average imports of the five years ending 1931 there was a decrease of 23 million lb. Amongst the other principal European importing countries, Sweden, Netherlands, Denmark, Finland, Norway and Switzerland showed a fairly appreciable increase in their purchases in 1938 with respect to both the preceding year and the average. The net import of coffee into the seventeen European countries as a whole, shown in the above table, thus exceeded by more than 119 million lb. the 1937 figure and by about 185 million lb. the absolutely identical figures of the two five-year averages ending respectively in 1931 and 1936. All the extra-European countries comprised in the above table also increased their net imports in 1938 with respect to 1937, and, except Japan, with respect to the average of the preceding five years. Imports into Argentina rose progressively from 46 million lb. on the average of 1932-1936 to 50 million in 1937 and 61 million in 1938. The increase in the imports of Canada, South Africa and Algeria is less marked than in the case of Argentina.

Years	Net world imports (million lb.)	Exports from Brazil	Percentage of total %
<i>Average 1909-1913</i>	2,343	1,672	71.4
<i>Average 1927-1931</i>	3,262	2,022	62.0
1932	3,166	1,579	49.9
1933	3,280	2,045	62.3
1934	3,213	1,871	58.2
1935	3,528	2,028	57.5
1936	3,511	1,876	53.4
<i>Average 1932-1936</i>	3,340	1,880	56.3
1937	3,328	1,603	48.2
1938	3,801	2,264	59.6

The part played by Brazil in the world supply of coffee, despite the general tendency to increase net world imports in the last few years, underwent a progressive and very appreciable decline up to 1937, from 71.4 per cent. on the average of 1909-13, 62.0 per cent. in 1927-31, 56.3 per cent. in 1932-36 to 48.2 per cent. in 1937. In 1938 Brazil marketed 2,264 million lb. out of a world total of 3,801 million, that is 59.6 per cent., exceeding not only the low proportion of 1937 but also that of the preceding five years (56.3 per cent.). Parallel to the regression in Brazilian exports the countries producing and exporting "Milds" increased their absolute and relative contribution so as to attain maximum figures in 1937. In 1938 the proportion from these countries underwent a contraction, which was fairly appreciable with respect to recent years; however, it must be noted that this was not due to the abnormal conditions on the international coffee market in consequence of the commercial war, but rather to the small supplies of "Milds" available for export from the poor harvest of 1937-38.

Measures adopted for the Stabilization of the Coffee Market.

The exceptional conditions on the world coffee market in November 1937 compelled the majority of the countries producing and exporting coffee to maintain and in some cases to extend during the current season the measures of protection adopted during the preceding season.

In Brazil, at a congress of the States producing coffee held under the auspices of the "Departamento Nacional do Café" in May 1938, it was decided to adopt a series of measures for the re-establishment of statistical equilibrium between exports and the capacity for absorption of the world market, at the same time regulating the arrivals of coffee at the ports of export. These measures may be summarized as follows:

(1) For shipments of coffee of ordinary or current quality (Despachos comuns), there were established three quotas namely: (a) equilibrium quota, so-called D. N. C. quota 1938-39, corresponding to 30 per cent. of the total, which must be delivered for compulsory destruction, to the Departamento Nacional do Café at the price of 2 milreis per bag of 133 lb. gr. weight; (b) retained quota 1938-39, corresponding to 30 per cent. of the total and applied to coffee retained for an indefinite time for sale at a favourable time; (c) direct quota 1938-39, corresponding to 40 per cent. of the total and applied to quantities for direct delivery to ports of export.

(2) For deliveries of superior quality (despachos preferenciais) the quotas fixed are two: (a) equilibrium quota, so-called D. N. C. quota 1938-39, corresponding to 15 per cent. of the total to be obligatorily delivered for destruction to the Departamento Nacional do Café; (b) preferential quota 1938-39, corresponding to 85 per cent. of the total that must be obligatorily delivered to the Departamento Nacional do Café for direct delivery to the ports of export.

The D. N. C. quota must be for coffees not inferior to type with a maximum of three per cent. of impurities.

Arrivals at ports of shipment were regulated by the D. N. C. so that the respective stocks were maintained within the following limits (million lb.): Santos 291; Rio and Nitcheroy 93; Victoria 40; Paranagua 15; Angra do Reis 8; Bahía 8; Recife 7; a total of 462 million lb. of available stocks.

In addition the Congress of coffee producing States confirmed the prohibition of new plantations in the national territory and set up general rules for the guidance of the coffee policy of the country. These rules had in view continuation in the interior of the practice of destroying surplus coffee from the new crop and, as regards the international situation, the continuation of the commercial struggle. The destruction of coffee since 1931, with elimination varying very greatly from one year to another had become a permanent institution in the coffee policy of Brazil.

Quantities of Coffee destroyed in Brazil by seasons.

(ooo pounds)

Season (July 1-June 30)	Production	Quantities destroyed			Percentage of production
		First half-year	Second half-year	Total	
					%
1931-32	2,869,767	(1) 373,685	720,694	(2) 1,094,379	38.1
1932-33	3,385,650	513,458	816,154	1,329,612	39.3
1933-34	3,916,746	1,023,830	436,296	1,460,126	37.3
1934-35	3,643,151	657,200	134,042	791,242	21.7
1935-36	2,504,239	89,949	104,059	194,008	7.7
1936-37	3,476,702	389,558	1,051,388	1,440,946	41.4
1937-38	3,412,547	1,223,790	693,577	1,917,367	56.2
1938-39	3,086,482	365,307	(3) 115,743	...	...

(1) Seven months. — (2) Thirteen months. — (3) Three months: January to March 1939.

It reached its maximum in 1937-38 with 1,917 million lb. against 1,141 million in the preceding season, which approached the maximum of 1933-34 (1,460 million lb.). In relation to the volume of the crop the percentage in 1937-38 (56.2 per cent.) was the highest since 1931-32, distinctly exceeding the maximum of the preceding season (41.4 per cent.). In the first half of the current season (July 1-December 31 1938) the rate of destruction showed a very marked slackening, attaining scarcely 365 million lb. against 1,224 million in the corresponding half year of the preceding season. Compared with the corresponding half year of the preceding season, the quantity of coffee eliminated from the market in the first half of the current season was the smallest since the beginning of the destruction policy, unless for 1935-36. The tendency to reduce the destruction was intensified in the first quarter of the current year (January 1-March 31 1939), the corresponding figure attaining only 116 million lb. against the 368 million eliminated in the same period of 1938. The excess stocks of coffee eliminated in Brazil from 1931 to the end of March 1939 reached 8,709 million lb., a quantity exceeding by about 130 per cent. the exceptionally high figure of world net imports in the past year. The elimination of coffee will be carried on in the 1939-40 season also. At the annual Congress of coffee producing States

last February, held under the auspices of the D. N. C., a resolution was adopted to maintain in 1939-40 a regulation identical with that of the current season, especially as regards the distribution of shipments, the proportions to be sold at the different prices, the buying prices and the regulation of deliveries at the ports of exports. In addition the existence of the D. N. C. was prolonged until June 30 1941.

The emergency measures adopted by Colombia for the mitigation of the effects of the fall of prices on the international market were as follows: a reduction from 12 per cent. to 10 per cent. in the tax on foreign exchange derived from preferential exports and the assignment of part of this profit to the «Federación Nacional de Cafeteros»; the regulation of the trade in foreign exchange and the control of exchange rates, propaganda for the increase of internal consumption of coffee. In Venezuela the Government had granted a premium of 22 bolivras per bag of 101 lb. of coffee exported and, to attenuate the disastrous effects of the poor unit-yields obtained in 1938-39, has authorized the Agricultural Bank to grant special credits to coffee growers who have lost more than 50 per cent. of their crops.

In Salvador the Government has reduced the export tax on coffee from 2.7 American Gold dollars to 95 cents per 220 lb., so as to favour the movement of the product which represents more than 90 per cent of total value of its exports.

The Government of Cuba, after having regulated the processing, transport and consumption of coffee within the country, establishing a minimum selling price, has granted a premium of 25 centavos per bag of 101 lb. of exported coffee. Finally all the countries producing and exporting coffee, so as to ensure the movement of their exportable crops at the low prices of the international market without excessive loss to the growers have had to maintain or initiate during the current commercial season a great many measures arranging from the reduction of export taxes to the concession of bounties and from the modification of their monetary policy to the granting of loans or a declaration of moratorium. The situation in colonial countries has been on the whole relatively more favourable in view of the privileges accorded to the entry of their coffee into the majority of the European countries having colonial possessions. In the international sphere must be mentioned the strong publicity campaign organized in the United States by the Pan-American Coffee Office of New York for the increase in consumption in that country and for the popularization of iced coffee.

Prices.

The prices in Gold Frs. per quintal of the Brazilian variety Santos No. 4 and Rio No. 7 at New York and for Colombia at Le Havre, underwent a sudden and very severe collapse in consequence of the policy adopted by Brazil at the beginning of November. As regards Santos No. 4 in particular the average prices from that month onwards showed a steady and very appreciable decline to a minimum in April 1938. Since then, with slight monthly oscillations, prices of this variety, though remaining very much below the corresponding prices of 1937, have shown a slight recovery.

The November price, which is the highest of the year except for January, remains more than one-quarter below the average price of 1937 and 10 per cent. below the exceptionally low average of 1935. In December 1938 the price of this variety again showed a tendency to decline and the fall continued without interruption during the first four months of 1939.

*Prices of Coffee "Santos No 4" and "Rio No. 7" at New York
and "Colombien" at Havre.*

(Price in gold francs per quintal)

Annual average	Santos No. 4 at New York	Rio No. 7	Colombien at Havre
1928	264.94	188.75	307.68
1929	253.15	180.26	287.99
1930	150.89	99.55	208.21
1931	99.96	70.40	208.45
1932	121.91	91.94	147.98
1933	85.08	72.15	110.63
1934	76.12	66.97	104.34
1935	60.73	48.76	83.23
1936	63.92	50.25	82.07
1937	74.43	59.28	80.80
1938	52.88	35.70	70.67

Monthly average	Santos No. 4 at New York			Rio No. 7 at New York			Colombien at Havre		
	1937	1938	1939	1937	1938	1939	1937	1938	1939
January . . .	76.73	58.17	52.30	60.74	38.80	35.43	88.35	65.28	81.50
February . . .	77.61	54.39	52.30	62.42	37.12	35.02	88.92	67.46	82.62
March	75.92	50.61	50.21	63.23	36.71	34.55	87.64	64.23	82.62
April	75.92	48.93	48.52	61.55	32.86	34.55	85.23	64.15	82.62
May	79.29	51.42	...	63.23	31.65	...	83.50	63.71	...
June	78.89	50.61	...	63.23	32.86	...	83.66	68.96	...
July	78.01	51.42	...	63.23	32.86	...	79.20	70.16	...
August	76.73	53.58	...	62.42	37.52	...	77.81	73.93	...
September . .	76.73	53.11	...	62.42	37.93	...	75.90	76.01	...
October . . .	77.20	53.99	...	61.55	37.12	...	79.38	76.00	...
November . .	61.14	54.80	...	45.15	37.12	...	74.18	78.94	...
December . .	59.05	53.58	...	42.18	35.83	...	65.89	79.24	...

For Rio No. 7 at New York the decline in prices from November 1937 continued without interruption until May 1938, when the average price showed a reduction of 50 per cent. with respect to the corresponding price of the preceding year. A slight improvement then characterized the price of this variety until November 1938. However, from December onwards, both this price and that of Santos No. 4 again showed a slight decline which continued until last April. The prices of Colombia at Le Havre, with oscillations that were, however,

as violent as those of Brazilian varieties, declined fairly appreciably from December 1937. The minimum price of this variety corresponded in May 1938 to a reduction of about one quarter with respect of the price of the same month in the preceding year. From June the recovery was progressive and continued without interruption until February of the present year, the average price of which exceeded by 17 per cent. the average of 1938 and slightly exceeded those of the preceding two years. The prices of the following two months remained unchanged from the level of February 1939.

Conclusion.

The conclusions of a general character that emerge from this summary review of the world statistical situation of coffee in 1938-39 and of the stage reached in the commercial struggle at present in progress and the countries producing "Milds" may be summed up as follows.

Although the production of coffee in 1938-39 was the smallest for many years, except in 1935-36, it exceeded by 1,210 million lb. the exceptionally high figure of world net imports in 1938. For several years there has been a crisis of over-production of coffee that the fairly constant increase in world demand has attenuated only to a very small extent.

At the beginning of November 1937 Brazil, after the failure of the Pan-American Conference at Havana, reversed its traditional policy of protection and valorization of coffee. Since then a commercial struggle has been engaged in between Brazilian coffee and "Milds". At the end of the first year of struggle the results were considered very satisfactory both in Brazil and in Colombia, which play an absolutely predominant part in the world supply of coffee. The quantity of coffee exported in 1938 by Brazil exceeds in absolute figures by about 660 million lb. or (41.2 per cent.) the exports of the preceding year and by 384 million (20.4 per cent.) the average movement of the preceding quinquennial period. Despite the very appreciable fall of prices the commercial results of the first year of the new policy were considered in Brazil to be generally very satisfactory, since they permitted a lightening of the internal market and an appreciable decrease in the destruction of coffee. Colombia, thanks also to a somewhat small export surplus of "Milds" in 1937-38, has entirely exported its surplus at relatively satisfactory prices.

The other countries producing "Milds" were also able to market their entire exportable surpluses in 1938. However, the problem of coffee remains unsolved owing to the impossibility at the present time of the re-establishing of even an approximate equilibrium between world production and consumption. The measures of urgency adopted by the majority of producing countries without doubt attenuated the repercussions of the commercial disturbance that at present affects the world market for this product, but a permanent solution remains dependent on solidarity amongst the producing countries. Such a firm entente which must in the first place regulate production and the commercial distribution of coffee in the world is the indispensable basis for a wider international agreement, to

which all the principal countries consuming coffee would adhere. The participation of these would facilitate the elimination or the reduction to a minimum of the obstacles that limit, with international trade, also the world consumption of coffee.

A. DI FULVIO.

Current information on Coffee.

Indochina: Harvesting of the Robustoides group proceeded normally in March. Harvesting of Liberia coffee began in the second half of the month.

Tanganyika: It was reported in March that, provided normal rains continued, the prospects for arabica coffee in the Northern and Southern Highlands Provinces and for robusta in Bukoba might be regarded as being good.

Groundnuts.

Argentina: Except in Córdoba and Corrientes, the production of groundnuts this season is satisfactory in all the producing centres. The crop is of good quality.

Netherlands Indies: Java and Madura. — The Department of Agricultural Statistics With the Central Statistical Office communicates the following details of the groundnut area:—

	1939 acres	1938 acres
Area harvested in March	50,400	61,000
Area harvested from January 1 to March 31 ..	134,700	140,600
Area of standing crops at the end of March . .	146,800	164,100

Indochina: Condition of groundnuts was good in Tonkin in March. Harvesting began in South Annam, Cambodia and Cochinchina; yields are very uneven, being in most cases mediocre owing to the drought.

Tanganyika: It was reported in March that groundnut production was expected to be below normal owing to diseases and scarcity of seed.

Colza and Sesame.

Germany: On May 1 the crop condition of winter colza was 3.3 against 3.4 on April 1, 1939 and 2.7 on May 1, 1938. The corresponding figures for winter rape were 3.4, 3.6 and 2.6.

Bulgaria: The area under colza in 1939 is estimated at 57,800 acres against 50,900 acres in 1938 and an average of 22,000 acres in 1933 to 1937; percentages, 113.6 and 262.3.

Netherlands: Only 80 per cent. of the colza crops survived the exceptional rigours of the winter and the surviving crops were in poor condition. Crop condition, in the system of the country was 35 on April 17, 1939 against 73 on April 19, 1938.

Poland: In various districts colza, having been damaged by the December frost, was ploughed in. The crop is better only in certain parts of the south. On April 15 condition of winter colza was 2.9 as on March 15 against 3.5 on April 15 last year.

Supplementary production figures.

As the 1938 or 1938-39 figure of production and area for most countries were published in the March number of the Monthly Crop Report and Agricultural Statistics, it is not necessary to repeat them again this month. Hence only new data and any modifications of the figures published last month are given in continuation. In another table is shown the total world production based on the figures received up to the time of going to press.

COUNTRIES	AREA					PRODUCTION							
	1938 and 1938-39	1937 and 1937-38	Average 1932 to 1936 and 1932-33 to 1936-37	% 1938 and 1938-39		1938 and 1938-39	1937 and 1937-38	Average 1932 to 1936 and 1932-33 to 1936-37	1938 and 1938-39	1937 and 1937-38	Average 1932 to 1936 and 1932-33 to 1936-37	% 1938 and 1938-39	
				1937 and 1937- 1938 = 100	Aver. = 100							1937 and 1937- 1938 = 100	Aver. = 100
WHEAT	ooo acres					ooo centals			ooo bushels				
Denmark	325	319	279	101.8	116.5	10,161	8,113	7,359	16,935	13,521	12,265	125.2	138.1
Hungary	4,000	3,665	3,936	109.1	101.6	59,267	43,295	47,719	98,777	72,157	79,531	136.9	124.2
India	34,692	35,343	34,086	98.2	101.8	218,736	236,387	213,920	364,560	393,979	356,533	92.5	102.3
Syria and Leb. . . .	1,404	1,373	1,262	102.3	111.3	14,205	10,336	8,859	23,674	17,227	14,765	137.4	160.3
Turkey	9,497	8,267	8,038	114.9	118.1	93,660	79,793	60,128	156,097	132,985	100,212	117.4	155.8
Argentina	19,102	15,112	16,109	126.4	118.6	201,724	110,882	139,002	336,199	184,799	231,665	181.9	145.1
RYE													
Denmark	359	344	349	104.2	102.7	6,252	5,538	5,427	11,165	9,889	9,691	112.9	115.2
Hungary	1,562	1,499	1,592	104.2	98.1	17,739	13,622	16,699	31,677	24,325	29,820	130.2	106.2
Portugal	331	348	369	95.3	89.8	2,269	2,107	2,404	4,051	3,763	4,293	107.6	94.4
Turkey	1,130	835	743	135.4	152.0	9,987	7,435	6,045	17,656	13,277	10,795	133.0	163.6
Argentina	1,069	503	894	212.4	119.6	6,063	1,973	5,373	10,826	3,523	9,594	307.3	112.8
BARLEY													
Denmark	982	911	864	107.8	113.6	29,970	24,238	21,734	62,438	50,496	45,279	123.6	137.9
Portugal	186	180	176	103.0	105.6	860	860	901	1,791	1,791	1,877	100.0	95.4
Syria and Leb. . . .	838	795	742	105.4	112.9	8,453	5,872	6,306	17,611	12,233	13,137	144.0	134.0
Turkey	4,851	4,369	3,906	111.0	124.2	53,100	50,194	35,075	110,626	104,572	73,074	105.8	151.4
Argentina	1,232	1,125	1,362	109.6	90.5	9,700	11,321	14,583	20,209	23,585	30,381	85.7	66.5
OATS													
Denmark	926	930	943	99.6	98.3	25,225	22,595	21,682	78,829	70,610	67,757	111.6	116.3
Portugal	618	645	489	95.9	126.4	2,090	2,168	1,926	6,530	6,774	6,020	96.4	108.5
Chosen. r)	199	220	284	90.3	70.1	874	984	962	2,731	3,074	3,006	88.8	90.8
Syria and Leb. . . .	24	27	31	91.6	79.6	218	234	280	682	730	876	93.4	77.9
Turkey	596	532	483	112.1	123.3	5,680	4,940	4,145	17,748	15,437	12,952	115.0	138.0
Argentina	1,766	1,770	1,852	99.8	95.4	16,094	15,190	17,883	50,293	47,468	55,885	106.0	90.0
MESLIN													
Denmark	746	764	814	97.6	91.6	17,533	16,619	17,137	30,230	28,653	29,546	105.5	102.3
RICE (ROUGH)													
Syria and Leb. . . .	3	3	2	103.2	133.8	66	75	51	146	168	113	87.1	129.3
Turkey	56	70	90	80.1	62.6	1,388	1,641	2,186	3,084	3,647	4,858	84.5	63.5
POTATOES													
Switzerland	123	121	115	101.8	106.9	17,880	19,353	15,777	29,799	32,255	26,295	92.4	113.3
Syria and Leb. . . .	31	30	17	102.4	177.9	918	872	869	1,530	1,454	1,447	105.3	105.7
Turkey	134	136	115	98.1	116.1	3,717	4,111	3,009	6,194	6,851	5,014	90.4	123.5

COUNTRIES	AREA					PRODUCTION							
	1938 and 1938-39	1937 and 1937-38	Average 1932 to 1936 and 1932-33 to 1936-37	% 1938 and 1938-39		1938 and 1938-39	1937 and 1937-38	Average 1932 to 1936 and 1932-33 to 1936-37	1938 and 1938-39	1937 and 1937-38	Average 1932 to 1936 and 1932-33 to 1936-37	% 1938 and 1938-39	
				1937 and 1937- 1938 = 100	Aver. = 100							1937 and 1937- 1938 = 100	Aver. = 100
SUGAR-BEET	ooo acres					ooo centals			ooo short tons				
Denmark . . . 2)	94	99	99	95.0	94.6	30,049	33,169	34,871	1,502	1,658	1,744	90.6	86.2
Hungary	109	116	112	93.7	97.2	21,372	22,324	20,322	1,069	1,116	1,016	95.7	105.2
Turkey	52	73	57	70.7	91.7	6,054	6,415	8,101	303	321	405	94.4	74.7
VINES						ooo Imp. gallons			ooo Am. gallons				
Portugal (cont.)	—	—	—	—	—	a) 240,985	177,057	157,451	289,402	212,629	189,084	136.1	153.1
—						ooo centals			ooo pounds				
Syria and Leb. . .	151	140	124	107.9	121.4	b) 4,336	4,004	3,298	433,615	400,378	329,834	108.3	131.5
OLIVES									ooo Am. gallons				
Portugal	—	—	—	—	—	c) 794	2,144	939	10,582	28,586	12,516	37.0	84.5
—									ooo pounds				
Syria and Leb. . .	227	223	203	101.9	111.9	d) 1,945	1,914	1,273	194,540	191,385	127,260	101.6	152.9
FLAX									ooo Am. gallons				
Hungary	29	25	25	116.2	116.7	e) 337	371	242	4,500	4,943	3,229	91.0	139.3
—									ooo pounds				
Argentina	5,739	5,691	6,017	100.8	95.4	f) 76	65	63	7,573	6,531	6,335	116.0	119.5
—									ooo bushels				
HEMP									ooo pounds				
Hungary	36	35	24	102.8	149.5	g) 261	242	151	26,085	24,181	15,143	107.9	172.3
—									ooo pounds				
Argentina	5,739	5,691	6,017	100.8	95.4	h) 26	28	46	2,610	2,761	4,580	94.5	57.0
Hungary	54	52	44	104.8	123.6	i) 41	41	31	4,081	4,113	3,052	99.2	133.7
—									ooo pounds				
Syria and Leb. . .	12	16	6	74.6	208.1	j) 1	1	17	84	83	1,743	101.1	4.8
—									ooo pounds				
Syria and Leb. . .	12	16	6	74.6	208.1	k) 76	105	35	7,637	10,507	3,482	72.7	219.3
—									ooo pounds				
Syria and Leb. . .	12	16	6	74.6	208.1	l) 14	21	9	1,368	2,057	890	66.5	153.8
HOPS						ooo pounds							
Hungary	0.2	0.2	0.3	103.6	82.7	123	126	151	123	126	151	97.4	81.7
TOBACCO													
Hungary	35	36	44	96.5	78.3	45,029	45,008	55,459	45,029	45,008	55,459	100.0	81.2
Italy	81	79	87	102.7	93.5	90,453	94,631	98,897	90,453	94,631	98,897	95.6	91.5
Syria and Leb. 3)	11	15	14	70.7	78.1	7,518	11,418	7,253	7,518	11,418	7,253	65.8	103.7
Turkey	208	233	133	89.0	156.0	117,267	140,886	89,918	117,267	140,886	89,918	83.2	130.4
Madagascar	18	17	24	102.9	74.1	14,330	13,889	16,864	14,330	13,889	16,864	103.2	85.0
TEA													
Netherland Indies.	...	337	322	...	...	178,381	164,279	165,575	178,381	164,279	165,575	108.6	107.7
Japan	98	98	95	100.0	103.0	120,631	118,858	97,742	120,631	118,858	97,742	101.5	123.4
GROUNDNUTS						ooo centals							
Nigeria 4)	—	—	—	—	—	5) 3,600	4,629	5,194	360,000	462,923	519,438	77.4	69.0
RAPESEED									ooo bushels				
Hungary	28	15	28	190.5	101.6	251	129	191	502	258	381	194.6	131.8
SESAME									ooo short tons				
Syria and Leb. . .	15	13	10	117.0	154.2	118	95	44	6	5	2	123.9	269.3

(a) Wine. — (b) Grapes. — (c) Olive-oil. — (d) Olives. — (e) Fibre. — (f) Seed — (g) Unmixed crop. — (h) Mixed crop.
 (i) Rectification of the data published in last month's Report. — (2) Sugar-beets for sugar. — (3) Tobacco and tumbac.
 — (4) Shelled groundnuts, exports by commercial season Oct. 1-Sept. 30. — (5) Approximate unofficial estimate.

Totals of World Agricultural Production.

The following totals have been obtained from the data in the tables published for each product in March, which have been revised and completed. With the name of each product is indicated the number of countries for which data for 1938 are at present available and also the percentage of the average world production in 1932 to 1936 as shown in the *International Yearbook of Agricultural Statistics 1938-39* (in the press) in which nearly all producing countries appear.

CROP (not including U. S. S. R. and China 1)	AREA						PRODUCTION												
	1938 — 1938-39	1937 — 1937-38	Average 1932 to 1936 1932-33 to 1936-37	% 1938 — 1938-39		1938 — 1938-39	1937 — 1937-38	Average 1932 to 1936 1932-33 to 1936-37	1938 — 1938-39	1937 — 1937-38	Average 1932 to 1936 1932-33 to 1936-37	% 1938 — 1938-39							
				1937 — 1937-38	Aver- age 1937- 1938 = 100							1937 — 1937-38	Aver- age 1937- 1938 = 100						
Thousand acres					Thousand centals						Thousand bushels								
Wheat (50 countries, 95 %)	270,597	258,313	240,353	104.8	112.6	2,610,192	2,194,522	2,074,345	4,350,232	3,657,463	3,457,173	118.9	125.8						
Rye (31 countries, 97 %)	47,435	46,108	45,574	102.9	104.1	584,895	485,109	528,410	1,044,458	866,268	943,592	120.6	110.7						
Barley (44 countries, 85 %)	60,132	60,473	58,137	99.4	103.4	705,153	630,685	608,861	1,469,095	1,313,950	1,268,484	111.8	115.8						
Oats (38 countries, 97 %)	90,605	90,817	93,024	99.8	97.4	1,078,104	1,021,068	982,257	3,369,050	3,190,814	3,069,533	105.6	109.8						
Maize (30 countries, 83 %)	147,398	147,854	155,892	99.7	94.5	2,112,261	2,143,355	1,892,514	3,771,897	3,827,421	3,379,488	98.5	111.6						
Rice (rough) (18 coun- tries, 84 %) (2)	118,481	118,234	116,863	100.2	101.4	1,677,474	1,741,697	1,653,561	3,727,646	3,870,361	3,674,506	96.3	101.4						
Potatoes (32 coun- tries, 91 %) (1)	30,543	30,676	30,103	99.6	101.5	3,503,796	3,809,363	3,231,123	5,839,544	6,348,811	5,385,098	92.0	108.4						
Sugar-beet (22 coun- tries, 91 %) (2)	7,994	7,690	7,527	104.0	106.2	1,560,920	1,655,823	1,294,146	78,045	82,790	64,706	94.3	120.6						
Cotton (ginned) (21 countries, 96 %) (2)	67,236	80,281	69,010	83.8	97.4	121,800	161,787	108,279	25,484	33,848	22,652	75.3	112.5						
Linseed (17 countries, 98 %)	12,308	12,044	12,351	102.2	99.7	53,720	54,785	57,741	95,929	97,831	103,110	98.1	93.0						
Flax (fibre) (15 coun- tries, 99 %) (2)	5,760	6,358	6,422	90.6	89.7	16,971	17,306	15,179	1,697	1,731	1,518	98.1	111.8						
Hemp seed (9 coun- try, 75 %) (1)	413	413	346	100.0	119.3	1,627	1,631	1,601	163	163	160	99.7	101.7						
Hemp (fibre) (9 coun- tries, 70 %) (1)	591	566	418	104.4	141.4	4,974	4,709	3,071	497	471	307	105.6	162.0						
Hops (8 countries, 80 %) (1)	92.4	97.9	91.7	94.4	100.8	101,204	108,887	91,796	10,120	10,889	9,180	92.9	110.2						
Tobacco (24 countries, 80 %) (1)	4,109	4,238	3,778	97.0	108.8	3,647,854	3,839,088	3,484,817	364,785	383,909	348,482	95.0	104.7						
Olive oil (18 countries, 99 %) (1)	—	—	—	—	—	16,583	24,718	18,281	221,109	329,577	243,743	67.1	90.7						
Vines (Wine) (17 coun- tries, 78 %) (1)	—	—	—	—	—	3,552,604	3,075,257	3,244,639	4,266,358	3,693,108	3,896,519	115.5	109.5						
Silk (10 countries, 98 %) (2)	—	—	—	—	—	790,829	901,297	896,500	790,829	901,297	896,500	87.7	88.2						

(1) For production in China, see Crop Report for March. — (2) Including U. S. S. R. — (3) Cocoons.

Current information on Fodder Crops.

Germany: On May 1, 1939 the crop condition of clover was 3.1 against 3.1 on April 1, 1939 and 2.7 on May 1, 1938. Corresponding figures for alfalfa were 2.7, 2.9 and 2.7; for irrigated meadows 2.5, 2.8 and 2.8; for unirrigated meadows 2.8, 3.0 and 3.0; and for pastures 3.0, 3.0 and 3.1.

Belgium: Many meadows after some weeks of grazing no longer provide feed for stock. Clover and rye-grass are in mediocre condition.

The data of production of fodder crops in 1938 compared with the figures for 1937 and the average for the preceding five years are as follows (in thousands):—

		1938	1937	Average 1932-1936	% 1938 1937 = 100	Average = 100
Mangels	(centals)	101,331	124,034	127,233	81.7	79.6
	(sh. tons)	5,066	6,202	6,362		
Carrots, main crop . .	(centals)	738	831	619	88.8	119.2
	(sh. tons)	37	42	31		
Turnips and swedes, crop	(centals)	3,654	4,204	4,037	86.9	90.5
	(sh. tons)	183	210	202		
Crimson clover (1) . .	(centals)	4,198	3,838	4,180	109.4	100.4
	(sh. tons)	210	192	209		
Red clover (2)	(centals)	6,094	6,865	8,638	88.8	70.5
	(sh. tons)	305	343	432		
Other clover (2) . . .	(centals)	1,358	1,573	1,626	86.4	83.5
	(sh. tons)	68	79	81		
Alfalfa (2)	(centals)	1,121	1,088	1,353	103.1	82.9
	(sh. tons)	56	54	68		
Sainfoins (2)	(centals)	273	287	374	95.3	73.0
	(sh. tons)	14	14	19		
Meadow-hay, mown (2)	(centals)	23,121	25,877	22,058	89.4	104.8
	(sh. tons)	1,156	1,294	1,103		
Rye-grass and timothy (2)	(centals)	1,076	1,174	928	91.7	116.0
	(sh. tons)	54	59	46		
Turnips (catch crop) .	(centals)	48,012	60,055	58,874	79.9	81.6
	(sh. tons)	2,401	3,003	2,944		
Carrots (catch crop) .	(centals)	950	1,256	1,648	75.7	57.7
	(sh. tons)	48	63	82		
Spurry (catch crop) .	(centals)	1,752	1,983	2,767	88.4	63.3
	(sh. tons)	88	99	138		

(1) Green feed. — (2) Hay.

France: At the end of April the growth of meadows and pastures was satisfactory. Though rather retarded by cold weather at the end of the month, grass was sufficiently abundant to permit the grazing of stock. On the higher mountains, however, snow falls at the end of April prevented the use of high pastures. The first half of May was generally cold and wet and does not seem to have favoured growth. In certain localities meadows were flooded.

Italy: In the first half of April the growth of meadows and pastures was rather good, but in a number of districts was retarded by lack of moisture. In the second half of the month growth of meadows was retarded by drought and low temperatures.

Latvia: At the beginning of May the crop condition of annual clover was average in 36.7 per cent. of reports of correspondants, above average in 46.1 per cent. and below average in 17.2 per cent. Corresponding figures for perennial clover were 42.0, 24.3 and 33.7 per cent.

Limited quantities of ordinary fodder of generally below average quality were available, but supplies of concentrated feed were ample and of satisfactory quality.

Lithuania: The cool weather of April was not very favourable for meadows and pastures, and clover crops were late in beginning to turn green.

Netherlands: The intense cold of the beginning of the year greatly affected permanent meadows, clover and alfalfa, the growth of which is accordingly retarded. However, the fine weather of the second half of April somewhat improved the condition of permanent meadows. Red clover has practically failed, while alfalfa has been a little less affected by the frost. These poor conditions are reflected in the following table of crop condition, expressed in the system of the country:

	April 17 1939	April 19 1938
Permanent meadows.	54	74
Clover	40	73
Alfalfa	54	67

Poland: In several areas clover, having been damaged by the December frost, was ploughed in. The crop is better only in the Lublin area. On April 15 condition of clover was 2.9 as on March 15 against 3.2 on April 15 of last year.

Switzerland: The wet weather of April greatly stimulated the growth of permanent and rotation meadows, which have a thick sward and abundant growth. Conditions are in contrast to last year when growth was retarded by drought. It seems safe to count on a quantitatively good crop of hay. Crop condition on May 1, 1939, in the system of the country, was 82 for permanent meadows (against 81 on April 1, 1939 and 53 on May 1, 1938); that of rotation meadows was 84 against 81 and 56 respectively.

United Kingdom: Pastures were backward at the end of April especially on high, exposed ground. Growth was general in the second week of April but was subsequently checked again by a return of cold and windy weather and by grazing.

Argentina: The condition of pastures in April was generally good.

Canada: The condition of hay and clover meadows on April 30, 1939 was 97 compared with 100 at the same date last year.

French Morocco: The weather in April was changeable with frequent variations in temperature and direction of wind; rains were of short duration but widespread. Cisterns are full and subterranean and surface water reserves are abundant. The bite on grazings on the plains is substantial, but on the mountains is insufficient owing to cold spells in April having checked growth.

Australia: Pastures in the south coastal districts of New South Wales made rapid growth following excellent rains during March and heavy rain also in the north coastal areas assisted growth. Except in the central tablelands and parts of the central western slopes of the State prospects for stock were considerably improved by the rain. The period of butter production was likely to be prolonged.

Excellent rains throughout Queensland greatly improved pastures and dairy production soon showed a marked increase. Ample green feed and water seemed to be assured for some time.

Moderate to heavy rains fell over the greater part of South Australia in March. There was an abundance of feed and water in pastoral districts at the beginning of April.

In Western Australia March was hot and dry but, following the heavy rains of January and February grasses were holding well on the south coast and conditions were variable

LIVESTOCK AND DERIVATIVES

Livestock in Albania.

The following table shows the number of the different classes of livestock at the end of 1938 with corresponding figures for 1932 to 1936. No statistics are available for 1937.

CLASSIFICATION	1938	1936	1935	1934	1933	1932
<i>Horses</i>	54,426	67,791	67,154	68,240	66,750	62,490
Geldings	28,587	34,288	34,200	34,985	34,915	32,500
Mares	25,839	33,503	32,954	33,255	31,835	29,990
<i>Asses</i>	44,579	68,529	68,400	69,237	66,641	64,290
<i>Mules</i>	10,391	9,584	9,246	8,971	8,690	8,400
<i>Cattle</i>	391,175	407,205	397,763	391,400	394,767	382,658
Calves	109,750	83,407	68,700	68,270	72,558	71,235
Oxen	168,190	183,256	183,400	183,130	182,212	176,012
Cows	113,235	140,542	140,663	140,000	139,947	135,411
<i>Buffaloes</i>	21,486	16,453	6,991	6,730	6,546	6,284
<i>Sheep</i>	1,573,857	1,675,368	1,594,965	1,540,200	1,500,932	1,477,674
Lambs	289,931	600,181	607,025	559,950	553,149	545,153
Sheep	1,283,926	1,075,187	987,940	980,300	947,783	932,521
<i>Goats</i>	932,333	975,017	973,696	948,224	928,542	915,429
Kids	176,298	239,487	239,100	237,427	238,427	234,320
He-goats	60,593	70,941	70,485	53,356	32,674	31,776
She-goats	695,442	664,589	664,311	657,441	657,441	649,333
<i>Pigs</i>	15,286	24,354	24,100	23,200	23,500	23,294

Pigs in Germany.

Following the decline of last year, numbers on March 3, 1939, show a general increase.

*Numbers of Pigs in Germany *.*

CLASSIFICATION	March 3 1939	March 3 1938	March 3 1937	March 3 1936	Dec. 3 1938	Sept. 3 1938	June 3 1938
(Thousands)							
Sucking pigs under 8 weeks old .	5,043	4,461	5,570	5,524	4,271	5,546	4,704
Young pigs from 8 weeks to 6 months old	9,486	9,401	10,628	9,634	9,658	9,933	9,478
Pigs from 6 months to 1 year old including:	5,044	4,813	4,611	4,311	7,144	6,088	4,977
Boars for service	39	26	40	45	60	25	30
Sows for breeding (total) . . .	580	477	503	596	454	464	557
Sows covered	(386)	(313)	(305)	(373)	(256)	(245)	(370)
Other swine	4,425	4,310	4,068	3,670	6,630	5,599	4,390
Pigs 1 year old and over	1,731	1,597	1,820	1,753	2,408	1,843	1,642
including:							
Boars for service	52	51	59	59	54	54	52
Sows for breeding (total) . . .	1,362	1,242	1,456	1,407	1,376	1,406	1,341
Sows covered	(828)	(752)	(847)	(839)	(850)	(740)	(827)
Other swine	317	304	305	287	978	383	249
TOTAL . . .	21,304	20,272	22,629	21,222	23,481	23,410	20,804

* Not including the Land of Austria.

Livestock in Belgium.

In the following table are given the numbers of livestock in Belgium on 31 December 1938 compared with the figures of preceding years and the pre-war period:

YEAR	Horses (1)			Cattle				Pigs			
	under 3 years	over 3 years	Total	under 2 years	dairy cows	other cattle over 2 years	Total	under 6 months	over 6 months	of which store pigs (fatten- ing)	Total
1938 . . .	78,866	185,784	264,650	646,719	965,699	77,262	1,689,680	467,235	493,137	362,557	960,372
1937 . . .	77,231	187,233	264,464	663,212	971,627	75,192	1,710,037	413,460	458,096	337,175	871,556
1936 . . .	75,518	187,586	263,104	589,078	983,983	79,738	1,782,840	506,987	547,486	704,805	1,054,475
1935 . . .	91,112	140,294	231,406	763,064	970,225	104,205	1,837,494	712,139	572,326	428,261	1,284,465
1934 . . .	91,199	140,600	231,799	762,334	963,030	114,317	1,839,681	688,684	569,174	422,485	1,257,858
1933 . . .	91,442	141,847	233,289	760,609	946,515	105,483	1,812,607	729,168	623,358	461,345	1,352,526
1932 . . .	95,079	142,933	238,012	745,752	941,814	95,880	1,784,446	679,424	565,230	421,322	1,244,654
1931 . . .	96,663	145,326	241,989	738,740	930,930	97,866	1,767,536	672,902	562,312	420,114	1,235,214
1920 . . .	98,184	147,787	245,971	732,437	925,556	100,661	1,758,654	680,867	568,754	424,066	1,249,621
1929 . . .	99,564	149,450	249,014	727,208	911,720	99,420	1,738,348	675,374	561,628	421,252	1,237,002
1913 . . .	95,472	171,688	267,160	779,950	936,800	132,734	1,849,484	746,674	665,619	—	1,412,293

(1) Horses used in agriculture.

Wool Production in Canada.

Shorn wool production in Canada in 1938 is estimated to have amounted to 13,386,000 lb and that of pulled wool to 4,309,000 lb. The total—17,695,000 lb.—compares with 17,629,000 lb. in 1937 and 17,431,000 lb. in 1936. The average yield per sheep of shorn wool was 7.3, 7.2 and 7.2 lb. respectively while the average yield of pulled wool is assumed to have been 3.5 lb.

Poultry and Egg Production in Japan.

CLASSIFICATION	July 1 1938	July 1 1937	July 1 1936	July 1 1935	July 1 1934	July 1 1933	July 1 1932
<i>Fowls</i>	48,395,452	51,265,892	50,793,143	51,698,450	53,315,720	50,910,994	54,306,119
over 6 months old.	28,366,048	30,220,731	30,004,559	31,024,131	30,832,118	29,961,647	32,699,711
under 6 months old.	20,029,404	21,045,161	20,788,584	20,674,319	22,483,602	20,949,347	21,606,408
<i>Ducks</i>	458,203	512,160	498,587	552,098	560,044	467,723	455,925
over 6 months old.	206,366	245,085	276,271	287,082	262,539	240,843	247,336
under 6 months old.	251,837	267,075	222,316	265,016	297,505	226,880	208,589
	1937-38	1936-37	1935-36	1934-35	1933-34	1932-33	1931-32
Hen's eggs (thousands) (1)	3,471,839	3,642,989	3,537,310	3,608,676	3,535,071	3,408,888	3,559,297
Duck's eggs (thousands) (1)	12,467	14,758	14,720	15,887	15,482	12,227	12,809

(1) July 1 to June 30.

World Trade and Prices of Cheese in 1938.

Cheese is not, as is butter, a uniform dairy product distinguished only by different qualities. The word "cheese" is rather a comprehensive term covering a very large number of products more or less distinct from each other. These differences arise from variations in the origin and fat-content of the raw material, in the process of manufacture and in the consistency and conservability of the product. However, in reviewing the international trade situation it is necessary to ignore the different types of cheese, not only for the interest of considering the cheese trade as a whole, but also because the statistical data available do not allow any other course to be taken.

The aggregate volume of world trade in cheese reached its peak, for the post-war period, in the year 1930, with total exports of 768,093,000 lb. In 1936 the amount had fallen to 593,222,000 lb. The increase, which took place in 1937, was continued in 1938 but only to a very small degree.

The number of large cheese exporting countries is much smaller than in the case of butter. Nine countries together contribute about 90 per cent. of

world exports. The aggregate exports of these countries increased by only about 6,610,000 lb. between 1937 and 1938 against a rise of 37,500,000 lb. between 1936 and 1937. In fact, in the case of the three largest exporting countries, New Zealand, Netherlands and Canada there was even an appreciable fall in 1938. New Zealand

Exports of Cheese.

(Thousand lb.)

COUNTRIES	1938	1937	1936	1935	1934	1933	1932	1931
New Zealand	180,381	184,494	185,720	193,489	222,266	222,088	200,527	183,271
Netherlands	128,953	138,045	125,311	134,597	134,892	140,902	170,061	190,458
Canada	80,989	88,955	81,891	55,720	61,167	74,168	86,940	84,788
Italy	53,275	52,680	42,843	61,223	55,283	52,779	66,399	88,948
Switzerland	49,348	38,852	40,737	40,248	39,145	45,347	43,700	54,307
Australia	35,181	18,689	13,058	16,003	12,430	10,895	8,801	7,412
France	26,508	24,747	23,345	24,628	25,973	25,034	29,211	34,289
Denmark	20,084	20,668	21,008	14,689	13,891	22,220	14,535	9,383
Finland	14,930	14,575	10,864	9,365	8,523	9,207	7,225	57,768
<i>Total</i> . . .	589,649	581,705	544,777	549,962	573,570	602,640	627,399	710,624
WORLD TOTAL . . .	(1)633,600	(1)632,950	593,226	598,405	618,712	645,677	674,996	720,253

(1) Estimated.

exports, which had not shared in the recovery of 1937, continued the decline that had persisted since 1934. The rise in the aggregate volume of exports in spite of these falls is due principally to the very large increase in cheese exports from Australia and Switzerland. The share of the smaller exporting

Imports of Cheese.

(Thousand lb.)

COUNTRIES	1938	1937	1936	1935	1934	1933	1932	1931
United Kingdom (1) . . .	326,032	326,455	297,025	300,773	331,335	337,754	333,117	319,916
Germany	71,675	81,342	61,507	61,661	74,488	90,923	108,688	120,404
United States	54,432	60,650	59,849	48,934	47,534	48,398	55,621	61,990
Belgo-Luxemburg Union . .	53,363	49,983	50,834	50,740	47,428	48,418	45,660	49,600
France	31,262	29,363	43,498	34,782	35,151	46,105	52,267	82,810
<i>Total</i> . . .	536,764	547,793	501,713	496,890	535,936	571,598	595,353	634,720
WORLD TOTAL . . .	(2)621,700	(2)632,300	584,342	581,515	519,730	647,438	674,846	734,583

(1) Re-exports have been deducted. — (2) Estimated.

countries not specified, increased on the aggregate since 1931, without any considerable changes in the last few years.

The number of larger importing countries is smaller still. The imports of these countries on the whole declined between 1937 and 1938, particularly

Cheese Imports into the United Kingdom.

(Thousand lb.)

COUNTRY OF ORIGIN	1938	1937	1936	1935
New Zealand	183,621	193,840	188,286	197,446
Canada	75,950	80,826	67,485	52,700
Australia	26,619	13,393	10,193	15,036
Netherlands	22,661	24,333	20,341	22,312
Italy	7,890	6,913	1,569	8,948
Switzerland	2,019	1,918	1,910	1,647
Other countries	9,188	7,604	9,970	5,918
TOTAL	327,948	328,821	299,754	304,007
Re-exports	1,916	2,363	2,738	3,234
United Kingdom exports	2,937	3,580	3,254	2,579
NET IMPORTS	323,095	322,878	293,762	298,194

Exports of Cheese by Type.

(Thousand lb.)

COUNTRIES	1938	1937	1936	1935	1934
(a) <i>Hard cheese.</i>					
Italy (1).	37,759	38,903	33,691	43,224	37,003
France (total)	4,897	4,928	4,151	4,570	4,698
to the colonies: Gruyère	4,531	4,337	4,076	4,392	4,515
Dutch	11	13	11	24	2
to foreign countries: Gruyère	342	560	64	154	128
Dutch	13	18	0	0	53
Total: Gruyère	4,872	4,897	4,140	4,546	4,643
Dutch	24	31	11	24	55
Switzerland	48,987	38,557	40,351	39,917	38,706
in loaves	39,264	30,933	33,411	33,050	31,636
processed, in boxes or in blocks	9,723	7,624	6,940	6,867	7,070
(b) <i>Soft cheese.</i>					
Italy (4).	15,516	13,781	9,151	17,996	18,283
France (total)	13,159	11,627	11,592	11,600	11,361
to the colonies	8,439	8,115	8,503	8,331	8,250
to foreign countries	4,720	3,512	3,089	3,269	3,111
(c) <i>Half-soft cheese.</i>					
France (total)	8,453	8,191	7,604	8,457	9,908
to the colonies: Roquefort	1,182	966	1,171	1,206	1,184
others	2,194	2,150	2,185	2,478	2,220
to foreign countries: Roquefort	3,869	3,708	3,159	3,272	4,672
others	1,208	1,367	1,089	1,501	1,832
Total: Roquefort . . . . .	...	4,601	4,330	4,478	5,856
others . . . . .	...	3,590	3,274	3,979	4,052

(1) Grana (Parmigiano, Lodigiano, Reggiano), Emmenthal and Gruyère, types pecorino, caciocavallo, etc. —
 (2) Net weight. — (3) Gross weight. — (4) Gorgonzola, stracchino, fontina, etc.

those of the German Reich and the United States. The increases, which took place in the imports of the Belgo-Luxemburg Union and France, were not very large.

Imports of Cheese by Type.

(Thousand lb.)

COUNTRIES	1938	1937	1936	1935	1934
(a) <i>Hard cheese.</i>					
Italy	10,196	9,440	7,879	10,554	10,093
France (total)	25,514	23,874	27,900	25,964	26,978
Gruyère	16,248	12,271	17,882	13,847	12,767
Dutch, Gorgonzola, Reggiano, Parmigiano	9,266	11,603	10,018	12,117	14,211
Belgo-Luxemburg Union (1)	51,725	48,859	49,950	49,661	46,330
Germany	70,176	79,512	59,957	60,065	73,390
table varietees	324	983	353	333	366
others	69,852	78,529	59,604	59,732	73,024
(b) <i>Soft cheese.</i>					
Italy	26	11	22	104	53
France	9	20	15	201	1,294
Belgo-Luxemburg Union	1,462	992	805	915	1,299
Germany	1,500	1,827	1,550	1,596	1,096
curds	849	1,373	972	1,155	719
table varietees	525	322	353	320	216
others	126	132	225	121	161
Switzerland	2,368	2,571	2,291	2,452	2,972
(c) <i>Half-soft cheese.</i>					
France	5,781	5,467	4,577	8,613	6,900
(1) Hard and half-soft cheese.					

The foreign trade situation of the United Kingdom, which is the largest cheese importing country, is given in a special table. It is to be regretted that the classification by countries of origin does not also include a classification by types of cheese, but no information is available in this respect. Nor do statistics of the supplying countries give much information on this point. The only comment that can be made is that the changes in United Kingdom imports between 1937 and 1938 correspond roughly with the fluctuations in the total exports of the countries of provenance.

A number of countries, including France, Italy and Switzerland, are both importers and exporters, the explanation being that the cheeses entering into international trade are of different qualities.

A differentiation by kinds of cheese is not made in statistical returns or, except for the United States, is only done in a very general way by groups. Classification into hard cheese and soft cheese is quite common and is sometimes supplemented by a sub-division for semi-hard cheese. Although

such a classification is very arbitrary and uneven—e. g., in France Gorgonzola is considered a hard cheese and in Italy a soft cheese—it assists the interpretation of international trade.

Exports of Cheese from Exporting Countries to other Exporting Countries.

(Thousand lb.)

	1938	1937	1936	1935	1934
Exported from Switzerland:—					
hard cheese (1):—					
to France . . . . .	...	10,448	14,586	11,883	11,034
to Italy . . . . .	...	6,812	5,659	6,682	6,387
processed hard cheese:—					
to France . . . . .	...	463	430	313	344
to Italy . . . . .	...	747	915	1,016	1,131
Exported from France:—					
hard cheese:—					
to Switzerland	93	192	...	...	...
soft cheese:—					
to Switzerland	798	677	584	679	655
Roquefort cheese:—					
to Switzerland	64	51	71	71	77
Exported from Italy:—					
hard cheese:—					
to Switzerland	798	787	906	1,179	2,097
to France	4,650	5,368	2,628	5,560	5,523
soft cheese:—					
to Switzerland	1,786	2,213	1,900	1,473	2,119
to France	2,469	2,286	1,759	4,885	4,162

(1) Not including processed cheese in boxes or in blocks.

The statistics of French exports separate trade with the colonies from that with foreign countries. They indicate that the colonies take most of the hard cheese. Semi-hard exports to the colonies in 1938 were about the same as in the previous year while exports to foreign countries were greater. Most of the soft cheese trade is with foreign countries, mainly owing to the considerable demand of the United States for Roquefort cheese. The proportion of hard cheese in Italian exports is greater than in those from France. Direct comparison between the two countries, however, is difficult owing to the differences in statistical recording.

Statistics of imports show more clearly than those of exports that hard cheese predominates in international trade. Thus, German imports, which in 1938 amounted to 71,675,000 lb., comprised only 1,500,000 lb. of soft cheese.

The fact that the cheese trade between the European exporting countries reaches such a high level is to be attributed mainly to the great variety of products included under the general heading of cheese. Many of the different kinds of cheese are still made in their places of origin despite technical progress and modern methods. Clear evidence of this can be seen, thanks to classification by variety, in the trade statistics of the United States. These statistics, which are not yet complete for 1938, illustrate the dominant position held by some exporting countries for certain kinds of cheese.

The prices of cheese expressed in gold francs are mainly intended to illustrate the course of prices of each kind and on each market considered. They

Imports of Cheese into the United States.

(Thousand lb.)

	1937	1936	1935	1934
Emmenthal or Swiss	10,332	6,287	6,259	6,819
including from Switzerland	5,135	4,709	4,811	5,520
Gruyère process	2,815	1,742	(1) ...	(1) ...
including from Switzerland	1,720	1,231	(1) ...	(1) ...
Romano or Pecorino	15,395	15,437	15,817	14,426
including from Italy	15,225	15,236	15,417	14,307
Reggiano or Parmesan	1,732	2,386	2,679	2,167
including from Italy	1,665	2,370	2,608	1,994
Provoloni and Provolette	5,575	5,175	6,319	6,952
including from Italy	5,560	5,155	6,314	6,950
Roquefort, original loaves	2,400	2,147	1,999	2,578
including from France	2,389	2,146	1,949	2,529
Cheddar in original loaves	4,726	10,846	(1) ...	(1) ...
including from Canada	4,648	10,780	(1) ...	(1) ...
Blue mold in original loaves	3,660	1,818	(1) ...	(1) ...
including from Denmark	2,227	1,041	(1) ...	(1) ...
Edam and Gouda	5,483	4,168	(1) ...	(1) ...
including from Netherlands	5,418	4,119	(1) ...	(1) ...

(1) Included in "other cheese".

can be used only to a limited extent for comparisons between the different markets. As in the case of butter, there was a general and pronounced fall

Prices of Cheese in gold francs (annual averages)

	1938	1937	1936	1935	1934	1933	1932	1931
Milano: Parmigiano - Reggiano	185.10	155.09	172.31	163.96	190.75	264.15	270.21	294.16
Alkmaar: Edam 40 +	71.84	66.48	69.62	61.84	77.66	84.22	94.62	130.12
Kempen: Emmenthal	197.60	197.60	197.76	189.68	174.39	178.52	200.19	240.57
London:								
English Cheddar	135.31	133.27	119.56	115.33	127.81	145.90	171.30	213.25
Canadian	110.93	109.55	99.41	89.52	82.69	101.00	119.72	163.35
New Zealand	102.32	99.11	90.95	72.52	71.08	78.93	107.40	133.98

after 1930, the lowest levels being touched in 1934 and 1935. The rise in subsequent years was interrupted in some cases in 1937. In 1938 prices recovered nearly everywhere with the rise in general price levels.

W. SCHUBRING.

Current information on Livestock and Derivatives.

France: At the close of the winter the condition of stock was rather mediocre owing to under-nourishment and the effects of foot-and-mouth disease. Farmers' stocks of hay were practically exhausted at the end of April. But the growth of grass promised a rapid improvement and an increase in milk production was already to be noted. The first half of May, however, was cold and wet and seems to have been unfavourable for stock in general.

Ireland: Weather conditions in April were cold and harsh with the result that the demand on limited supplies of fodder was unusually heavy. Supplies of last year's fodder were running low but the season for grass is at hand and no serious trouble was anticipated. There was a marked decrease in milk yields owing to the lateness of grass and the scarcity of hay.

Italy: According to a study recently made by the Central Statistical Institute, the production of cows' milk in Italy in 1938 is estimated at 1,512,440,000 Imperial gallons (1,816,300,000 American gallons), of which 80.4 per cent. is produced in Northern Italy, 10.6 per cent. in Central Italy, 5.6 per cent. in Southern Italy and 3.4 per cent. in the Islands. The utilization of milk is approximately as follows 22.2 per cent. for feeding to calves, 34.0 per cent. for manufacture and 43.8 per cent. for liquid consumption. The number of cows on March 19, 1938 was estimated at about 3,800,000, of which 72.8 per cent. were in Northern Italy, 15.4 per cent. in Central Italy, 7.5 per cent. in Southern Italy and 4.3 per cent. in the Islands.

Latvia: Milk production in April this year was 5 to 7 per cent. higher than in April 1938.

Netherlands: Feeding conditions for milk cows were good during March in all parts. Milk production was 3 per cent. larger than in the same month of 1938. In Utrecht, Zeeland and North Brabant production hardly differed from normal. In South Holland it declined by about 2 per cent. It increased by 2.5 per cent. in North Holland, 4 to 5 per cent. in Friesland, Drente and Limburg, and 7.5 per cent. in Groningen, Overijssel and Gelderland.

United Kingdom: Milk yields were difficult to maintain in April despite continued artificial feeding.

Switzerland: Deliveries of milk in January were 1.8 per cent. less and in February 1.5 per cent. less than in the corresponding months of 1938. The drop in production was particularly heavy in areas seriously affected by epizootis, while in other parts of the country, particularly Western Switzerland, there was a slight increase. With the falling off of the epizootis epidemic, milk production increased again so that in March, deliveries were slightly higher in the country as a whole than last year.

Argentina: The condition of stock in April was good except in Patagonia and the west of the grain belt.

United States: The number of cattle on feed for market in the 11 Maize Belt States on April 1 was estimated by the Bureau of Agricultural Economics to have been about 13 per cent. larger than a year earlier. This increase was equivalent to about 160,000 head. Though this increase follows an increase of 20 per cent. last year, the number on feed in early April this year was not yet back to the number on the corresponding date in most of the 15 years prior to 1934. The States in the

Western Maize Belt showed the largest increases but the numbers there were still considerably below the pre-drought. Moderate increases in the Eastern Maize Belt States brought the numbers on feed to the highest level for the past 10 years.

Development of the early lamb crop during March was below average for the country as a whole and much below the exceptionally favourable development in March 1938. Mild temperatures during much of March in all important early lambing States were favourable for the growth of the early lambs but the shortage of green feed in California and Texas, resulting from deficient moisture, and too many rainy and cloudy days in some of the other States more than offset the favourable effects of the mild temperatures.

With rather general rains and cool weather during March, feed conditions in California improved somewhat but range and pasture conditions on April 1 were still much below average. Slaughter lambs were expected to be below average in weight and finish. A continuation of poor feed conditions in Texas tended further to retard the development of both early and yearling lambs. Lambings in southeastern early lamb States were below average. Green feed was somewhat short because of the poor condition of grain pastures and the slow start of other pastures.

Union of South Africa: Good rains fell in March in most parts of Cape Province, except in the north-east. Grazing generally was abundant and prospects for stock for the coming winter were favourable. In Natal, Transvaal and the Orange Free State there was little rain in March, but following the heavy rains of February grazing was still very good. Stock generally were in good condition.

Current information on Sericulture.

France: Incubations this year are very much smaller.

Indochina: Mulberry bushes were growing again in March in North Annam. In Central Annam, they suffered considerably from drought but the situation was remedied partly by rains at the end of the month.

Japan: The quantity of silkworm eggs placed in incubation for spring cocoons is estimated at 2,025,900 ounces against 2,068,600 ounces in 1938 and an average of 2,535,500 ounces in 1933 to 1937; percentages, 97.9 and 79.9.

TRADE

COUNTRIES	MARCH				EIGHT MONTHS (August 1-March 31)				TWELVE MONTHS (August 1-July 31)	
	EXPORTS		IMPORTS		EXPORTS		IMPORTS		EXPORTS	IMPORTS
	1939	1938	1939	1938	1938-39	1937-38	1938-39	1937-38	1937-38	1937-38
Wheat. — Thousand centals (1 cental = 100 lb.).										
<i>Exporting Countries:</i>										
Bulgaria	75	522	0	0	75	3,570	0	0	4,666	0
Hungary	1,018	392	0	0	11,349	3,336	0	0	4,053	0
Lithuania	45	0	0	0	526	0	0	0	41	0
Poland-Danzig	71	33	0	52	497	35	65	161	36	241
Romania	1,366	1,708	0	0	18,277	16,572	0	0	19,305	0
Yugoslavia	123	7	0	0	2,872	2,345	0	0	2,352	0
U. S. S. R. . . . .	...	...	...	...	(5) 10,209	(5) 5,313	(5) 0	(5) 0	27,335	2,837
Canada	3,939	2,092	23	327	60,803	34,322	661	1,321	46,029	3,446
United States	5,092	5,106	542	5	31,812	34,159	3,800	1,211	55,461	1,323
Argentina	7,383	3,984	—	—	29,715	26,165	—	—	40,449	—
Chile . . . . .	...	...	...	...	(3) 0	(3) 0	(3) 4	(3) 0	0	1
Uruguay . . . . .	...	...	...	...	(4) 279	(4) 0	(4) 1	(4) 283	496	283
India: by sea	10	448	528	166	1,950	5,265	3,562	480	9,569	481
" by land . . . . .	...	...	...	...	(3) 209	(3) 139	(3) 71	(3) 118	433	196
Iraq . . . . .	...	...	...	...	(3) 426	(3) 440	(3) 0	(3) 0	1,076	1
Iran . . . . .	...	...	...	...	(1) 0	(1) 489	(1) 0	(1) 2	489	2
Manchukuo . . . . .	...	...	...	...	(3) 0	(3) 145	(3) 4	(3) 0	413	4
Syria and Lebanon	113	0	4	90	491	4	197	274	36	480
Turkey . . . . .	...	...	...	...	(1) 1,025	(1) 664	...	...	2,115	...
Algeria	164	304	69	0	920	3,708	769	173	4,184	700
Egypt . . . . .	...	...	...	...	(2) 1	(2) 434	(2) 0	(2) 0	436	18
French Morocco . . . . .	...	...	...	...	(1) 1,943	(1) 989	(1) 1	(1) 287	1,731	289
Tunisia . . . . .	...	...	...	...	(1) 1,291	(1) 1,660	(1) 7	(1) 39	2,764	40
Australia	3,537	7,794	0	0	23,505	30,330	0	0	56,017	0
<i>Importing Countries:</i>										
Germany (6)	0	0	1,192	1,776	0	0	17,956	14,915	0	21,123
Austria (6) . . . . .	...	...	...	...	(1) 3	(1) 6	(1) 2,478	(1) 2,021	9	4,081
Belgo-Luxemb. E. U.	50	512	2,196	2,230	1,845	2,068	15,680	18,033	2,630	24,945
Denmark	0	25	165	505	50	184	1,854	2,473	258	3,814
Spain	—	—	—	—	—	—	—	—	—	—
Estonia	0	0	0	11	0	10	11	35	10	103
Finland	0	0	23	74	0	0	511	695	0	987
France	1,016	0	1,034	804	4,008	286	6,912	7,137	286	10,899
Greece . . . . .	...	...	...	...	(1) 0	(1) 0	(1) 3,360	(1) 5,033	0	10,920
Ireland	0	0	902	680	0	0	6,341	5,619	0	7,705
Italy	0	1	698	197	29	40	4,153	2,590	40	5,723
Latvia	0	0	0	0	0	0	295	273	0	592
Norway	0	0	209	265	0	0	2,371	2,198	0	3,246
Netherlands	0	0	1,540	1,246	20	16	10,356	8,754	16	12,667
Portugal . . . . .	...	...	...	...	(1) 0	(1) 0	(1) 1,199	(1) 73	0	1,374
United Kingdom	174	68	14,857	9,088	1,079	804	84,194	69,515	1,286	108,330
Sweden	49	72	56	83	187	1,407	831	728	1,425	996
Switzerland	0	0	615	920	0	2	7,196	6,274	3	8,972
Czecho-Slovakia (7)	9	56	0	295	386	803	391	1,180	860	2,793
Brazil . . . . .	—	—	...	...	—	—	(3) 9,154	(3) 7,521	—	20,872
Colombia . . . . .	—	—	...	...	—	—	(4) 131	(4) 103	—	319
Peru . . . . .	...	...	...	...	(2) 0	(2) 0	(2) 1,444	(2) 1,457	0	3,003
Burma	1	1	3	4	4	3	54	78	6	127
Ceylon	—	—	45	10	—	—	88	66	—	79
China . . . . .	...	...	...	...	(1) 147	(1) 0	(1) 552	(1) 0	2	0
Chosen . . . . .	...	...	...	...	(1) 0	(1) 3	(1) 71	(1) 0	5	22
Taiwan . . . . .	—	—	...	...	—	—	(2) 0	(2) 0	—	0
Indochina . . . . .	...	...	...	...	(1) 0	(1) 0	(1) 3	(1) 0	0	1
Japan . . . . .	—	—	...	...	—	—	(3) 233	(3) 1,575	—	2,802
British Malaya . . . . .	...	...	...	...	(1) 2	(1) 1	(1) 8	(1) 7	2	11
Palestine	0	0	203	81	0	17	964	304	17	573
Union of South Africa . . . . .	...	...	...	...	(2) 0	(2) 4	(2) 1,026	(2) 6	4	555
New Zealand . . . . .	...	...	...	...	(1) 0	(1) 0	(1) 812	(1) 1,400	0	2,717
Total	24,235	23,125	24,904	18,909	205,935	175,738	190,131	164,412	286,345	270,693

(1) Up to February 28. — (2) Up to January 31. — (3) Up to December 31. — (4) Up to November 30. — (5) Up to September 30. — (6) From January 1, 1938 not including trade between Germany and Austria. — (7) For 1939 the data relate only to the period up to March 15.

COUNTRIES	MARCH				EIGHT MONTHS (August 1-March 31)				TWELVE MONTHS (August 1-July 31)	
	EXPORTS		IMPORTS		EXPORTS		IMPORTS		EXPORTS	IMPORTS
	1932	1933	1933	1938	1933-39	1937-38	1938-39	1937-38	1937-38	1937-38

Exporting Countries:

Wheat Flour. — Thousand centals (1 cental = 100 lb.).

Bulgaria	0	1	0	0	2	41	0	0	46	163
Spain	—	—	—	—	—	—	—	—	—	—
France	800	95	54	83	2,336	1,083	578	631	1,605	963
Hungary	88	41	0	0	585	733	0	0	958	0
Italy	146	179	5	5	1,181	1,417	260	86	2,308	160
Latvia	0	0	0	0	0	9	0	0	15	0
Lithuania	4	0	0	0	30	0	0	0	5	0
Poland - Danzig	65	40	0	0	620	180	0	0	322	0
Romania	2	0	0	0	7	1	0	0	1	0
Czecho-Slovakia (6)	105	61	0	0	561	597	3	4	752	5
Yugoslavia	4	39	0	0	27	186	0	0	306	0
U. S. S. R.	—	—	—	—	(3) 292	(5) 315	(5) 15	(5) 22	949	—
Canada	707	592	15	17	5,897	4,991	106	112	7,077	—
United States	1,084	857	1	0	7,962	6,787	106	142	10,179	—
Argentina	170	193	—	—	1,284	1,190	—	—	1,768	—
Uruguay	—	—	—	—	(4) 160	(4) 0	(4) 0	(4) 0	225	0
Chosen	—	—	—	—	(1) 341	(1) 89	(1) 0	(1) 0	217	0
India: by sea	85	152	0	1	876	964	2	3	1,450	4
Iraq	—	—	—	—	(3) 75	(3) 61	(3) 0	(3) 0	116	1
Iran	—	—	—	—	(1) 0	(1) 0	(1) 0	(1) 0	0	0
Japan	—	—	—	—	(3) 2,749	(3) 2,623	(3) 0	(3) 11	6,168	22
Algeria	35	50	6	11	315	415	107	37	657	113
French Morocco	—	—	—	—	(1) 0	(1) 0	(1) 0	(1) 0	0	0
Tunisia	—	—	—	—	(1) 220	(1) 184	(1) 56	(1) 75	310	112
Australia	1,563	1,136	0	0	9,177	8,213	0	1	12,976	1

Importing Countries:

Germany (7)	7	6	233	92	13	28	646	909	84	1,277
Austria (7)	—	—	—	—	(1) 2	(1) 9	(1) 209	(1) 214	10	368
Belgo-Luxemb. E. U.	6	8	2	0	52	68	14	30	100	35
Denmark	5	4	54	28	22	21	374	168	29	295
Estonia	0	0	0	0	0	0	0	0	0	0
Finland	0	0	27	43	0	0	364	350	0	574
Greece	—	—	—	—	(1) 0	(1) 0	(1) 21	(1) 13	0	23
Ireland	—	—	—	—	0	0	77	82	0	118
Norway	0	0	9	11	0	0	553	462	3	684
Netherlands	0	3	189	139	4	187	1,083	995	191	1,472
Portugal	—	—	—	—	(1) 0	(1) 0	(1) 28	(1) 25	0	43
United Kingdom	189	202	822	684	1,732	1,324	5,808	5,967	2,049	8,815
Sweden	1	2	0	0	4	14	4	2	18	3
Haiti	—	—	—	—	—	—	(3) 69	(3) 80	—	169
Brazil	—	—	—	—	—	—	(3) 422	(3) 332	—	857
Chile	—	—	—	—	(3) 0	(3) 0	(3) 43	(3) 9	0	44
Colombia	—	—	—	—	—	—	(4) 7	(4) 4	—	15
Peru	—	—	—	—	(2) 0	(2) 0	(2) 22	(2) 16	0	38
Burma	0	0	30	83	1	2	436	426	3	633
Ceylon	—	—	37	17	—	—	256	200	—	322
China	—	—	—	—	(1) 264	(1) 0	(1) 2,796	(1) 720	0	3,680
Netherlands Indies:	—	—	—	—	—	—	—	—	—	—
Java and Madura	—	—	—	—	—	—	(1) 750	(1) 606	—	1,093
Outer Provinces	—	—	—	—	—	—	(1) 435	(1) 403	—	644
Indochina	—	—	24	45	(1) 0	(1) 1	(1) 333	(1) 285	1	434
British Malaya	—	—	—	—	(1) 81	(1) 84	(1) 905	(1) 866	131	1,457
Manchukuo	—	—	—	—	(3) 0	(3) 153	(3) 3,095	(3) 705	202	2,897
Palestine	0	0	21	38	0	2	284	300	2	436
Syria and Lebanon	19	0	33	10	63	18	72	75	32	105
Egypt	—	—	—	—	(2) 0	(2) 30	(2) 21	(2) 26	32	85
Union of South Africa	—	—	—	—	(2) 1	(2) 4	(2) 5	(2) 5	6	11
New Zealand	—	—	—	—	(1) 0	(1) 0	(1) 0	(1) 0	0	1
Total . . .	5,085	3,661	1,600	1,434	37,139	32,026	20,365	15,399	51,303	28,416

(1) Up to February 28. — (2) Up to January 31. — (3) Up to December 31. — (4) Up to November 30. — (5) Up to September 30. — (6) For 1939 the data relate only to the period up to March 15. — (7) From January 1, 1938 not including trade between Germany and Austria.

COUNTRIES	MARCH				EIGHT MONTHS (August 1-March 31)				TWELVE MONTHS (August 1-July 31)	
	NET EXPORTS *		NET IMPORTS **		NET EXPORTS *		NET IMPORTS **		NET EX. *	NET IM. **
	1939	1938	1939	1938	1938-39	1937-38	1938-39	1937-38	1937-38	1937-38
Total Wheat and Flour †. — Thousand centals (1 cental = 100 lb.).										
Germany (5)	—	—	1,492	1,891	—	—	18,206	16,090	—	22,714
Austria (6)	—	—	—	—	—	—	(1) 2,752	(1) 2,288	—	4,549
Belgo-Luxemb. E. U. . .	—	—	2,140	1,707	—	—	13,784	15,915	—	22,228
Bulgaria	75	524	—	—	78	3,625	—	—	4,727	—
Denmark	—	—	231	513	—	—	2,274	2,485	—	3,910
Spain	—	—	—	—	—	—	—	—	—	—
Estonia	—	—	0	11	—	—	11	25	—	93
Finland	—	—	59	131	—	—	995	1,162	—	1,753
France	976	—	—	788	—	—	294	6,248	—	9,756
Greece	—	—	—	—	—	—	(1) 3,388	(1) 5,051	—	10,951
Hungary	1,136	446	—	—	12,129	4,314	—	—	5,331	—
Ireland	—	—	914	694	—	—	6,444	5,729	—	7,861
Italy	—	36	507	—	—	—	2,895	776	—	2,833
Latvia	0	0	—	—	—	—	295	261	—	571
Lithuania	51	0	—	—	566	0	—	—	48	—
Norway	—	—	262	434	—	—	3,103	2,812	—	4,155
Netherlands	—	—	1,791	1,427	—	—	11,775	9,816	—	14,368
Poland-Danzig	158	35	—	—	1,258	114	—	—	225	—
Portugal	—	—	—	—	—	—	(1) 1,236	(1) 106	—	1,431
Romania	1,268	1,708	—	—	18,286	16,573	—	—	19,307	—
United Kingdom . . .	—	—	15,527	9,663	—	—	88,549	74,901	—	116,072
Sweden	—	—	6	9	—	696	664	—	449	—
Switzerland (7) . . .	—	—	615	—	—	—	7,195	6,272	—	8,969
Czecho-Slovakia (8) .	149	—	—	157	739	413	—	—	—	936
Yugoslavia	129	58	—	—	2,908	2,592	—	—	2,758	—
Totals Europe	4,042	2,807	23,544	18,345	35,964	28,327	163,840	149,937	32,845	233,150
U. S. S. R.	—	—	—	—	(5) 10,579	(5) 5,704	—	—	25,694	—
Canada	4,839	2,532	—	—	67,863	39,506	—	—	51,789	—
United States	5,994	6,244	—	—	38,487	41,808	—	—	67,554	—
Haiti	—	—	—	—	—	—	(3) 91	(3) 107	—	226
Argentina	7,610	4,241	—	—	31,427	27,751	—	—	42,790	—
Brazil	—	—	—	—	—	—	(3) 10,077	(3) 7,964	—	22,015
Chile	—	—	—	—	—	—	(3) 61	(3) 12	—	59
Colombia	—	—	—	—	—	—	(4) 141	(4) 108	—	340
Peru	—	—	—	—	—	—	(2) 1,473	(2) 1,479	—	3,054
Uruguay	—	—	—	—	(4) 491	—	—	(4) 283	513	—
Burma	—	—	43	113	—	—	630	640	—	961
Ceylon	—	—	95	33	—	—	429	333	—	508
China	—	—	—	—	—	—	(1) 3,781	(1) 960	—	4,904
Chosen	—	—	—	—	(1) 385	(1) 121	—	—	257	—
Taiwan	—	—	—	—	—	—	(2) 0	(2) 0	—	0
India: by sea	—	483	405	—	—	6,067	447	—	11,017	—
„ „ by land	—	—	—	—	(3) 138	(3) 21	—	—	236	—
Netherlands Indies:	—	—	—	—	—	—	—	—	—	—
Java and Madura . . .	—	—	—	—	—	—	(1) 1,000	(1) 809	—	1,457
Outer Provinces . . .	—	—	—	—	—	—	(1) 579	(1) 538	—	858
Indochina	—	—	—	—	—	—	(1) 414	(1) 320	—	579
Iraq	—	—	—	—	(3) 525	(3) 521	—	—	1,229	—
Iran	—	—	—	—	(1) 487	(1) 0	—	—	487	—
Japan	—	—	—	—	(3) 3,432	(3) 1,907	—	—	5,393	—
British Malaya	—	—	—	—	—	—	(1) 1,104	(1) 1,048	—	1,777
Manchukuo	—	—	—	—	—	—	(3) 4,130	(3) 591	—	3,185
Palestine	—	—	231	132	—	—	1,342	685	—	1,135
Syria and Lebanon . .	92	—	—	103	282	—	—	347	—	542
Turkey	—	—	—	—	(1) 1,025	(1) 664	—	—	2,115	—
Algeria	132	356	—	—	428	4,039	—	—	4,210	—
Egypt	—	—	—	—	—	(2) 438	(2) 28	—	348	—
French Morocco . . .	—	—	—	—	(1) 1,943	(1) 702	—	—	1,442	—
Tunisia	—	—	—	—	(1) 1,504	(1) 1,768	—	—	2,988	—
Union of South Africa .	—	—	—	—	—	—	(2) 1,030	(2) 3	—	559
Australia	5,621	9,308	—	—	35,741	41,280	—	—	73,318	—
New Zealand	—	—	—	—	—	—	(1) 812	(1) 1,401	—	2,686
Total	28,330	25,971	24,318	18,726	230,214	201,111	191,409	167,565	324,205	277,995

* Excess of exports over imports. — ** Excess of imports over exports.

† Flour reduced to grain on the basis of the coefficient: 4,000 centals of flour = 1,333,333 centals of grain.

(1) Up to February 28. — (2) Up to January 31. — (3) Up to December 31. — (4) Up to November 30. — (5) Up to September 30. — (6) From January 1, 1938 not including trade between Germany and Austria. — (7) Wheat only. — (8) For 1939 the data relate only to the period up to March 15.

COUNTRIES	MARCH				EIGHT MONTHS (August 1-March 31)				TWELVE MONTHS (August 1-July 31)	
	EXPORTS		IMPORTS		EXPORTS		IMPORTS		EXPORTS	IMPORTS
	1935	1938	1939	1938	1938-39	1937-38	1938-39	1937-38	1937-38	1937-38

Exporting Countries:

Rye. — Thousand centals (1 cental = 100 lb.).

Bulgaria	0	0	0	0	0	147	0	0	158	0
Spain	—	—	—	—	—	—	—	—	—	—
Hungary	19	268	0	0	228	1,100	0	0	1,629	0
Latvia	0	0	0	0	0	0	0	0	0	0
Lithuania	93	145	0	0	1,289	308	1	0	1,084	0
Netherlands	26	71	156	35	967	1,242	654	786	1,617	1,308
Poland-Danzig	1,236	0	0	3	4,684	47	0	6	228	13
Romania	172	57	0	0	231	3,894	0	0	4,090	0
Yugoslavia	0	3	0	0	0	153	0	0	156	0
U. S. S. R. . . . .	...	...	...	...	(2) 1,428	(2) 846	(2) 0	(2) 0	8,314	0
Canada	0	5	0	0	469	233	0	35	363	35
United States	0	340	0	0	374	2,657	0	0	3,585	0
Argentina	286	6	—	—	523	53	—	—	96	—
Algeria	1	0	0	0	32	11	0	0	15	0

Importing Countries:

Germany (3)	0	0	555	192	2	0	2,178	1,276	0	1,596
Austria (3) . . . . .	...	...	...	...	(1) 3	(1) 11	(1) 104	(1) 3,082	15	4,131
Belgo-Luxemb. E.U.	0	4	684	61	21	74	4,695	1,148	90	2,462
Denmark	0	0	59	179	1	2	1,367	1,892	11	3,045
Estonia	0	0	0	0	127	1	182	239	102	325
Finland	0	0	2	117	0	0	260	469	0	668
France	0	0	3	1	0	0	30	12	0	17
Greece . . . . .	...	...	...	...	(1) 0	(1) 0	(1) 0	(1) 1	0	1
Italy	0	0	189	20	0	0	697	33	0	319
Norway	0	0	83	104	0	0	1,804	1,498	0	2,617
United Kingdom	0	0	0	6	2	3	80	97	3	125
Sweden	0	0	2	3	1	1	84	14	1	108
Switzerland	0	0	8	9	0	0	279	155	0	295
Czecho-Slovakia (4)	0	0	0	370	0	2	524	2,202	3	4,148
Palestine	—	—	12	11	—	—	116	85	—	147
French Morocco . . . . .	...	...	...	...	(1) 0	(1) 0	(1) 0	(1) 0	0	0
Total	1,833	899	1,753	1,111	10,382	10,985	13,055	13,030	21,560	21,360

(1) Up to February 28. — (2) Up to September 30. — (3) From January 1, 1938 not including trade between Germany and Austria. — (4) For 1939 the data relate only to the period up to March 15.

COUNTRIES	MARCH				EIGHT MONTHS (August 1-March 31)				TWELVE MONTHS (August 1-July 31)	
	EXPORTS		IMPORTS		EXPORTS		IMPORTS		EXPORTS	IMPORTS
	1939	1938	1939	1938	1938-39	1937-38	1938-39	1937-38	1937-38	1937-38
Barley. — Thousand centals (1 cental = 100 lb.).										
<i>Exporting Countries:</i>										
Bulgaria	0	0	0	0	0	256	0	0	256	0
Denmark	443	174	0	173	2,453	3,071	9	298	3,345	679
Spain	—	—	—	—	—	—	—	—	—	—
Hungary	18	20	0	0	83	150	0	0	170	0
Latvia	0	0	0	1	36	0	0	3	0	3
Lithuania	35	27	0	0	268	89	0	0	273	0
Poland - Danzig	698	420	0	0	4,760	3,163	0	0	4,605	0
Romania	61	457	0	0	2,581	4,484	0	0	5,107	0
Sweden	0	0	0	0	2	1	0	0	1	0
Czecho-Slovakia (5)	98	94	0	0	1,037	544	0	1	1,009	1
Yugoslavia	0	12	0	5	0	128	21	11	132	11
U. S. S. R. . . . .	...	...	...	...	(4) 4,534	(4) 2,946	(4) 0	(4) 0	6,402	0
Canada	243	390	0	0	6,156	5,021	1	0	7,077	0
United States	207	297	0	0	4,470	6,009	1	446	8,747	506
Argentina	1,381	788	—	—	2,799	4,163	—	—	4,831	—
Chile . . . . .	...	...	—	—	(3) 310	(3) 37	—	—	1,403	—
India: by sea	1	1	9	0	37	309	46	32	476	39
Iraq . . . . .	...	...	...	...	(3) 1,819	(3) 2,356	(3) 0	(3) 1	4,150	1
Iran . . . . .	...	...	...	...	(x) 37	(x) 219	(x) 0	(x) 0	279	0
Manchukuo . . . . .	...	...	—	—	(3) 1	(3) 15	—	—	22	—
Syria and Lebanon	59	18	10	0	728	82	14	26	242	37
Turkey . . . . .	...	...	...	—	(x) 1,839	(x) 2,107	—	—	2,846	—
Algeria	9	25	15	45	185	335	126	171	462	198
Egypt . . . . .	...	...	...	...	(2) 62	(2) 76	(2) 11	(2) 0	116	1
French Morocco . . . . .	...	...	...	...	(x) 836	(x) 0	(x) 0	(x) 434	41	62
Union of South Afr. . . . .	...	...	...	...	(2) 0	(2) 0	(2) 0	(2) 0	0	0
Australia	162	778	0	0	883	1,966	0	0	2,568	0
<i>Importing Countries:</i>										
Germany (6)	1	0	729	932	1	0	6,391	4,312	0	7,695
Austria (6) . . . . .	...	...	...	...	(1) 0	(1) 1	(1) 675	(1) 490	2	893
Belgo-Luxemb. E. U.	9	28	898	653	180	448	7,990	7,684	573	9,503
Estonia	0	0	0	30	0	0	4	56	0	94
Finland	0	0	0	0	0	0	0	2	0	2
France	10	0	349	124	41	4	1,288	1,563	6	1,946
Greece . . . . .	...	...	...	...	(1) 0	(1) 0	(1) 314	(1) 3	0	35
Ireland	0	0	0	0	0	14	242	271	14	384
Italy	7	0	120	63	21	3	552	597	7	981
Norway	0	0	62	37	0	0	285	274	0	281
Netherlands	44	34	318	446	810	648	3,250	3,794	677	5,504
United Kingdom	0	0	1,562	1,746	3	5	15,811	16,669	7	22,235
Switzerland	0	0	523	323	0	0	2,564	2,382	0	3,228
Burma	—	—	0	1	—	—	3	3	—	5
Ceylon	—	—	1	1	—	—	8	5	—	7
Chosen . . . . .	...	...	...	...	(1) 0	(1) 20	(1) 0	(1) 2	23	4
Indochina . . . . .	...	...	...	...	(1) 0	(1) 0	(1) 0	(1) 0	0	0
Japan . . . . .	—	—	...	...	—	—	(3) 0	(3) 25	—	54
Palestine	0	0	33	13	6	58	232	82	58	144
Tunisia . . . . .	...	...	...	...	(1) 4	(1) 684	(1) 126	(1) 10	829	17
New Zealand . . . . .	...	...	...	...	(1) 0	(1) 0	(1) 40	(1) 80	0	288
Total	3,486	3,563	4,629	4,593	36,982	39,412	40,004	39,727	56,756	55,404

(1) Up to February 28. — (2) Up to January 31. — (3) Up to December 31. — (4) Up to September 30. — (5) For 1939 the data relate only to the period up to March 15. — (6) From January 1, 1938 not including trade between Germany and Austria.

COUNTRIES	MARCH				EIGHT MONTHS (August 1-March 31)				TWELVE MONTHS (August 1-July 31)	
	EXPORTS		IMPORTS		EXPORTS		IMPORTS		EXPORTS	IMPORTS
	1939	1938	1939	1938	1938-39	1937-38	1938-39	1937-38	1937-38	1937-38
Oats. — Thousand centals (1 cental = 100 lb.).										
<i>Exporting Countries:</i>										
Bulgaria	0	0	0	0	0	2	0	0	2	0
Hungary	0	0	0	0	0	0	0	0	0	0
Lithuania	41	0	0	0	533	0	0	0	17	0
Poland-Danzig	170	55	0	0	337	129	0	0	186	0
Romania	0	0	0	0	0	6	0	0	6	0
Czecho-Slovakia (6)	1	157	0	2	553	679	2	3	864	3
Yugoslavia	0	0	0	1	0	114	0	1	114	1
U. S. S. R. . . . .	...	...	...	...	(5) 10	(5) 5	(5) 0	(5) 0	61	0
Canada	210	104	0	435	2,054	1,069	1,131	2,840	1,624	4,614
United States	4	127	29	0	1,179	2,515	58	3	3,797	3
Argentina	939	969	—	—	3,965	7,198	—	—	9,071	—
Chile . . . . .	...	...	...	...	(2) 287	(3) 306	(3) 0	(3) 0	1,177	0
Chosen . . . . .	...	...	...	...	(1) 1	(1) 20	(1) 0	(1) 1	118	2
India: by sea	13	1	—	—	29	14	—	—	22	—
French Morocco . . . . .	...	...	...	...	(1) 375	(1) 167	(1) 0	(1) 3	440	3
Tunisia . . . . .	...	...	...	...	(1) 96	(1) 225	(1) 0	(1) 0	302	0
Union of South Afr. . . . .	...	...	...	...	(2) 2	(2) 8	(2) 0	(2) 0	11	0
Australia	5	5	2	0	25	67	3	1	86	2
New Zealand . . . . .	...	...	...	...	(1) 0	(1) 1	(1) 2	(1) 11	2	14
<i>Importing Countries:</i>										
Germany (7)	0	0	104	1,146	1	0	1,457	1,753	0	3,314
Austria (7) . . . . .	...	...	...	...	(1) 0	(1) 0	(1) 586	(1) 232	1	417
Belgo-Luxemb. E. U.	0	0	97	99	1	2	345	537	2	1,124
Denmark	12	4	0	215	179	183	99	524	223	1,114
Estonia	0	0	0	6	0	0	3	8	0	73
Finland	0	0	0	16	0	0	20	113	0	144
France	1	0	31	21	9	5	198	340	7	493
Greece . . . . .	...	...	...	...	(1) 0	(1) 0	(1) 0	(1) 22	0	22
Ireland	0	0	0	0	3	0	0	0	30	0
Italy	0	4	14	29	5	24	65	333	65	369
Latvia	13	0	0	0	123	0	0	0	0	0
Norway	0	0	0	7	0	0	2	7	0	9
Netherlands	59	36	95	252	324	464	562	1,139	784	1,524
United Kingdom	6	1	132	88	22	20	1,463	778	28	1,324
Sweden	2	4	0	39	15	31	26	216	38	386
Switzerland	0	0	749	646	0	0	2,979	3,389	0	4,678
Uruguay . . . . .	...	...	...	...	(4) 0	(4) 15	(4) 0	(4) 0	15	0
Ceylon	—	—	2	1	—	—	11	9	—	15
Indochina . . . . .	...	...	...	...	(1) 0	(1) 0	(1) 0	(1) 1	0	2
Japan . . . . .	—	—	...	...	—	—	(3) —	(3) —	—	1
Syria and Lebanon	0	0	0	0	2	9	2	0	9	1
Algeria	0	0	23	40	11	3	434	340	16	473
Egypt . . . . .	—	—	...	...	—	—	(2) 0	(2) 0	—	0
Total	1,476	1,467	1,278	3,043	10,141	13,281	9,448	12,604	19,118	19,525

(1) Up to February 28. — (2) Up to January 31. — (3) Up to December 31. — (4) Up to November 30. — (5) Up to September 30. — (6) For 1939 data relate only to the period up to March 15. — (7) From January 1, 1938 not including trade between Germany and Austria.

COUNTRIES	MARCH				FIVE MONTHS (November 1-March 31)				TWELVE MONTHS (Nov. 1-Oct. 31)	
	EXPORTS		IMPORTS		EXPORTS		IMPORTS		EXPORTS	IMPORTS
	1939	1938	1939	1938	1938-39	1937-38	1938-39	1937-38	1937-38	1937-38
Maize. — Thousand centals (1 cental = 100 lb.).										
<i>Exporting Countries:</i>										
Bulgaria	0	320	0	0	0	576	0	0	1,394	0
Hungary	42	676	0	0	266	8,324	0	0	4,223	226
Romania	1,276	86	0	0	6,257	187	0	0	2,788	0
Yugoslavia	88	1,424	0	0	557	7,408	0	0	13,850	0
U. S. S. R. . . . .	...	...	...	...	...	...	...	...	(4) 0	(4) 0
United States	2,099	5,044	19	30	12,956	24,689	92	259	80,240	365
Haiti . . . . .	...	...	...	...	(3) 0	(3) 1	...	...	5	...
Dominican Republic . . . . .	...	...	...	...	(3) 69	(3) 54	...	...	264	...
Argentina	2,216	119	...	...	21,519	23,041	...	...	66,057	...
Brazil . . . . .	...	...	...	...	(3) 333	(3) 243	...	...	2,673	...
Burma	5	6	...	...	39	28	...	...	276	...
China . . . . .	...	...	...	...	(1) 26	(1) 0	...	...	0	...
India: by sea	0	0	...	...	1	1	...	...	2	...
Netherlands Indies:	...	...	...	...	...	...	...	...	...	...
Java and Madura . . . . .	...	...	...	...	(1) 563	(1) 209	...	...	1,209	...
Outer Provinces . . . . .	...	...	...	...	(1) 125	(1) 236	...	...	1,022	...
Indochina	274	288	...	...	3,763	4,296	...	...	12,554	...
Iraq . . . . .	...	...	...	...	(3) 0	(3) 2	...	...	20	...
Manchukuo . . . . .	...	...	...	...	(3) 915	(3) 1,159	...	...	5,146	...
Syria and Lebanon	7	2	9	0	34	16	9	1	18	1
Turkey . . . . .	...	...	...	...	(1) 1	(1) 1	(1) 9	(1) 0	23	0
Egypt . . . . .	...	...	...	...	(2) 1	(2) 1	(2) 0	(2) 0	7	114
Madagascar . . . . .	...	...	...	...	(1) 32	(1) 13	(1) 0	(1) 0	1,180	0
French Morocco . . . . .	...	...	...	...	(1) 0	(1) 0	(1) 0	(1) 390	0	479
Union of South Afr. . . . .	...	...	...	...	(1) 1,955	(1) 3,404	(2) 6	(2) 2	6,593	9
<i>Importing Countries:</i>										
Germany (5)	0	0	358	2,809	0	0	3,458	22,419	0	53,440
Austria (5) . . . . .	...	...	...	...	(1) 0	(1) 0	(1) 2,121	(1) 2,245	0	6,746
Belgo-Luxemb. E. U.	62	85	892	834	179	248	5,243	7,413	639	14,891
Denmark	0	0	205	639	1	4	1,145	4,583	170	8,332
Spain . . . . .	...	...	...	...	...	...	...	...	...	...
Estonia	0	0	0	0	0	0	0	62	0	62
Finland	0	0	26	162	0	0	557	803	0	1,497
France	2	1	659	1,093	5	5	7,743	9,246	14	16,807
Greece . . . . .	...	...	...	...	(1) 0	(1) 0	(1) 466	(1) 103	0	924
Ireland	0	0	953	662	0	0	3,623	2,945	0	7,616
Italy	8	0	197	69	17	0	616	370	2	1,137
Latvia	0	0	0	0	0	0	0	0	0	0
Norway	0	2	131	324	0	3	1,134	1,678	5	3,536
Netherlands	0	1	1,498	1,556	0	4	7,456	10,629	8	21,060
Poland-Danzig	0	0	0	0	0	0	0	47	0	60
Portugal . . . . .	...	...	...	...	(1) 0	(1) 0	(1) 354	(1) 557	0	1,223
United Kingdom	202	263	3,750	5,664	1,116	1,054	27,498	35,445	2,790	71,039
Sweden	0	0	57	366	0	0	345	1,665	0	4,166
Switzerland	0	0	208	251	0	0	946	1,144	0	2,306
Czecho-Slovakia (6)	0	42	30	41	0	80	717	308	198	1,072
Canada	1	0	77	172	2	2	2,420	1,904	2	3,811
Peru . . . . .	...	...	...	...	(2) 0	(2) 1	(2) 0	(2) 1	2	3
Chosen . . . . .	...	...	...	...	(1) 7	(1) 3	(1) 0	(1) 21	102	22
Japan . . . . .	...	...	...	...	...	...	(3) 950	(3) 717	...	5,451
Palestine	0	4	19	10	0	16	64	30	29	127
Algeria	7	6	0	0	37	0	93	24	8	41
Tunisia . . . . .	...	...	...	...	(1) 0	(1) 0	(1) 139	(1) 137	0	222
Australia	0	0	0	0	0	0	0	26	158	27
New Zealand . . . . .	...	...	...	...	(1) 0	(1) 0	(1) 0	(1) 0	0	2
Total	6,289	8,369	9,085	14,682	50,773	70,315	67,195	105,174	203,676	226,814

(1) Up to February 28. — (2) Up to January 31. — (3) Up to December 31. — (4) Up to September 30. — (5) From January 1, 1938 not including trade between Germany and Austria. — (6) For 1939 the data relate only to the period up to March 15.

COUNTRIES	MARCH				THREE MONTHS (January 1-March 31)				TWELVE MONTHS (January 1-Dec. 31)	
	EXPORTS		IMPORTS		EXPORTS		IMPORTS		EXPORTS	IMPORTS
	1939	1938	1939	1938	1939	1938	1939	1938	1938	1938
Rice. — Thousand centals (1 cental = 100 lb.).										
<i>Exporting Countries:</i>										
Spain	—	—	0	1	1,129	925	0	2	3,496	—
Italy	359	299	—	—	—	—	—	—	3,254	581
United States	314	164	69	56	928	715	158	141	(2) 1,236	—
Brazil	—	—	—	—	25,504	19,832	7	6	63,090	27
Burma	11,334	9,511	2	3	(1) 480	(1) 32	(1) 0	(1) 0	1,039	0
Chosen	—	—	—	—	(2) 4	(2) 0	(2) 0	(2) 0	(2) 223	0
Taiwan	—	—	—	—	9,378	7,656	(1) 31	(1) 32	22,309	263
Indochina	4,611	3,840	—	—	—	—	—	—	89	0
Iraq	—	—	—	—	(1) 0	(1) 246	(1) 3	(1) 1	705	12
Iran	—	—	—	—	9,839	9,106	—	—	32,151	—
Siam	3,642	3,159	—	—	(2) 379	(2) 116	(2) 0	(2) 0	1,442	202
Egypt	—	—	—	—	(1) 24	(1) 24	(1) 0	(1) 0	250	0
Madagascar	—	—	—	—	—	—	—	—	280	27
Australia	18	23	17	3	58	47	26	8	—	—
<i>Importing Countries:</i>										
Germany (5)	19	17	403	237	85	70	1,448	968	503	6,077
Austria (5)	—	—	—	—	(1) 0	(1) 0	(1) 134	(1) 64	0	474
Belgo-Luxemb. E. U.	43	26	142	95	114	65	344	221	328	1,565
Denmark	0	0	3	14	0	0	24	47	3	309
Estonia	—	—	1	—	—	—	4	4	—	24
Finland	—	—	16	18	—	—	39	58	—	297
France	10	19	634	687	32	60	1,453	2,689	386	13,238
Greece	—	—	—	—	(1) 0	(1) 0	(1) 122	(1) 151	0	625
Hungary	0	0	48	0	0	0	140	15	0	397
Ireland	0	0	7	8	0	0	17	20	0	77
Latvia	0	0	3	1	0	0	8	5	0	22
Lithuania	0	0	2	0	0	0	4	2	0	13
Norway	0	0	8	7	2	0	27	12	0	100
Netherlands	179	200	345	88	403	504	605	335	2,059	3,800
Poland-Danzig	0	4	2	6	7	35	3	130	129	1,064
Portugal	—	—	—	—	(1) 0	(1) 0	(1) 4	(1) 3	1	69
Romania	—	—	—	—	—	—	(2) 36	(2) 31	—	516
United Kingdom	9	3	277	160	26	14	489	368	98	3,013
Sweden	—	—	6	17	—	—	21	57	—	263
Switzerland	0	0	48	33	0	0	122	90	0	505
Czecho-Slovakia (5)	0	0	27	34	0	0	176	106	0	1,052
Yugoslavia	0	0	62	38	0	0	151	108	0	497
U. S. S. R.	—	—	—	—	—	—	—	—	(4) 24	(4) 881
Canada	2	2	49	52	4	4	114	103	7	592
Haiti	—	—	—	—	—	—	—	—	—	18
Argentina	—	—	—	—	(1) 1	(1) 0	(1) 125	(1) 110	1	1,108
Chile	—	—	—	—	—	—	—	—	—	271
Colombia	—	—	—	—	—	—	—	—	—	(3) 238
Peru	—	—	—	—	(2) 2	(2) 0	(2) 29	(2) 35	0	714
Ceylon	0	0	1,383	1,377	0	1	3,688	3,404	2	11,918
China	—	—	—	—	(1) 82	(1) 2	(1) 3,688	(1) 1,279	10	8,953
India: by sea	1,034	573	6,639	3,609	1,831	1,395	13,025	6,730	5,915	24,295
India: by land	—	—	—	—	—	—	—	—	469	1,736
Netherlands Indies:	—	—	—	—	—	—	—	—	—	—
Java and Madura	—	—	—	—	(1) 13	(1) 8	(1) 0	(1) 41	176	454
Outer Provinces	—	—	—	—	(1) 33	(1) 29	(1) 835	(1) 1,003	189	6,845
Japan	—	—	—	—	—	—	—	—	184	500
British Malaya	—	—	—	—	(1) 775	(1) 733	(1) 3,357	(1) 2,892	4,562	18,662
Manchukuo	—	—	—	—	—	—	—	—	304	1,277
Palestine	11	7	81	41	34	16	166	97	119	495
Syria and Lebanon	0	0	65	41	0	0	112	75	1	384
Turkey	—	—	—	—	—	—	(1) 0	(1) 0	—	0
Algeria	0	4	12	134	78	5	(1) 38	(1) 184	65	1,088
French Morocco	—	—	—	—	—	—	(1) 21	(1) 42	—	236
Tunisia	—	—	—	—	(1) 0	(1) 0	(1) 2	(1) 92	1	502
Union of South Afr.	—	—	—	—	(2) 0	(2) 0	(2) 74	(2) 73	0	1,311
New Zealand	—	—	—	—	(1) 0	(1) 0	(1) 14	(1) 11	0	64
Total	21,585	17,851	10,351	6,761	51,245	41,640	27,964	21,845	145,100	117,655

(1) Up to February 28. — (2) Up to January 31. — (3) Up to October 31. — (4) Up to September 30. — (5) From January 1, 1938 not including trade between Germany and Austria. — (6) For 1939 the data relate only to the period up to March 15.

COUNTRIES	MARCH				THREE MONTHS (January 1-March 31)				TWELVE MONTHS (January 1-Dec. 31)	
	EXPORTS		IMPORTS		EXPORTS		IMPORTS		EXPORTS	IMPORTS
	1939	1938	1939	1938	1939	1938	1939	1938	1938	1938
Linseed. — Thousand centals (1 cental = 100 lb.).										
<i>Exporting Countries:</i>										
Latvia	15	6	5	2	56	38	24	7	74	17
Lithuania	47	4	0	0	127	45	0	0	125	0
Romania . . . . .	...	...	...	...	(2) 0	(2) 0	(2) 0	(2) 2	0	5
Argentina	3,875	2,509	—	—	11,073	8,631	—	—	27,764	—
Uruguay . . . . .	...	...	—	—	...	...	—	—	(3) 1,419	—
China . . . . .	...	...	—	—	(1) 6	(1) 16	—	—	160	—
India: by sea . . .	508	443	0	0	1,523	814	0	0	6,397	1
„ : by land . . .	—	—	...	...	—	—	...	...	—	326
Iraq . . . . .	...	...	—	—	...	...	—	—	82	—
Egypt . . . . .	...	...	...	...	(2) 0	(2) 0	(2) 0	(2) 0	4	6
French Morocco . .	...	...	—	—	(1) 22	(1) 27	—	—	127	—
Tunisia . . . . .	...	...	...	...	(1) 0	(1) 0	(1) 0	(1) 0	0	0
New Zealand . . . .	...	...	...	...	(1) 0	(1) 0	(1) 0	(1) 0	0	0
<i>Importing Countries:</i>										
Germany (4)	0	0	563	691	0	0	813	1,030	0	3,418
Austria (4) . . . .	...	...	...	...	(1) 0	(1) 0	(1) 0	(1) 1	0	4
Belgo-Luxemb. E. U	34	31	189	165	58	49	1,024	607	93	1,886
Denmark	0	0	50	57	0	1	159	110	1	372
Spain	—	—	—	—	—	—	—	—	—	—
Estonia	0	1	0	0	3	5	0	0	5	0
Finland	0	0	24	13	0	0	51	50	0	177
France	0	0	610	549	1	0	1,431	1,275	2	4,480
Greece . . . . .	...	...	...	...	(1) 0	(1) 0	(1) 7	(1) 4	0	75
Hungary	0	0	1	40	0	0	33	50	0	65
Ireland	0	0	13	27	0	0	40	42	0	139
Italy	0	0	107	132	0	0	252	383	0	1,160
Norway	0	0	82	100	0	0	180	151	0	463
Netherlands	50	33	369	502	105	79	1,960	2,043	124	6,572
Poland-Danzig . . .	0	0	0	0	0	0	0	0	0	0
United Kingdom . .	0	0	571	555	0	0	1,702	1,368	0	6,191
Sweden	—	—	183	216	—	—	328	234	—	1,074
Czecho-Slovakia (5)	0	0	31	60	0	0	74	93	0	385
Yugoslavia	0	0	35	22	0	0	68	59	0	216
Canada	1	2	45	59	6	5	100	147	7	399
United States . . .	—	—	1,138	819	—	—	3,579	2,643	—	8,604
Burma	0	0	0	0	0	0	0	0	0	0
Japan . . . . .	...	...	...	...	...	...	...	...	2	177
Palestine	—	—	4	4	—	—	10	5	—	14
Algeria	0	0	0	0	0	0	0	0	0	1
Australia	0	0	166	34	0	0	202	132	0	725
Total	4,530	3,029	4,186	4,047	12,980	9,710	12,037	10,436	36,386	36,952

(1) Up to February 28. — (2) Up to January 31. — (4) Up to November 30. — (4) From January 1, 1938 not including trade between Germany and Austria. — (5) For 1939 the data relate only to the period up to March 15.

COUNTRIES	MARCH				EIGHT MONTHS (August 1-March 31)				TWELVE MONTHS (August 1-July 31)	
	EXPORTS		IMPORTS		EXPORTS		IMPORTS		EXPORTS	IMPORTS
	1939	1938	1939	1938	1938-39	1937-38	1938-39	1937-38	1937-38	1937-38
<i>Exporting Countries:</i>										
United States . . .	1,732	2,262	48	94	14,722	24,902	477	398	29,882	795
Haiti . . .	...	...	—	—	(3) 2	(3) 9	—	—	105	3
Dominican Republic . . .	...	...	—	—	(3) 1	(3) 0	—	—	234	—
Argentina . . .	2	0	—	—	349	71	—	—	5,481	—
Brazil . . .	...	...	—	—	(3) 2,559	(3) 2,115	—	—	1,489	—
Peru . . .	...	...	—	—	(2) 1,033	(2) 927	—	—	436	0
Burma . . .	35	29	0	0	267	330	0	0	1,955	181
China . . .	...	...	...	...	(1) 1,235	(1) 333	(1) 594	(1) 63	8,251	3,131
India: by sea . . .	1,295	1,059	165	310	7,439	4,821	1,013	1,986	—	—
Netherlands Indies:										
Java and Madura . . .	...	...	—	—	(1) 10	(1) 7	—	—	11	—
Outer provinces . . .	...	...	—	—	(1) 12	(1) 14	—	—	49	—
Iraq . . .	...	...	...	...	(3) 29	(3) 34	(3) 1	(3) 2	85	5
Iran . . .	...	...	...	...	(1) 73	(1) 217	(1) 0	(1) 0	415	0
Syria and Lebanon . . .	9	5	1	0	47	39	1	0	53	0
Turkey . . .	...	...	—	—	(1) 264	(1) 174	—	—	479	—
Egypt . . .	...	...	—	—	(2) 3,996	(2) 4,820	—	—	8,567	—
French Morocco . . .	...	...	...	...	(1) 0	(1) 1	(1) 0	(1) 1	1	1
<i>Importing Countries:</i>										
Germany (6) . . .	0	0	472	465	0	0	4,245	4,885	0	6,914
Austria (6) . . .	...	...	...	...	(1) 0	(1) 0	(1) 482	(1) 500	0	832
Belgo-Luxemb. E. C. . .	78	66	218	259	559	543	1,636	1,857	841	2,714
Bulgaria . . .	0	0	33	31	0	0	187	178	0	258
Denmark . . .	—	—	22	9	—	—	130	132	—	190
Spain . . .	...	...	—	—	—	—	—	—	—	—
Estonia . . .	0	0	14	10	0	0	102	95	0	133
Finland . . .	0	0	29	15	0	0	257	247	1	324
France . . .	82	30	460	556	287	264	4,220	5,072	384	6,773
Greece . . .	...	...	...	...	(1) 0	(1) 0	(1) 22	(1) 41	0	66
Hungary . . .	0	0	45	52	0	0	415	362	0	500
Italy . . .	0	0	250	368	0	0	1,983	2,579	0	3,688
Latvia . . .	0	0	8	13	0	0	73	71	0	106
Lithuania . . .	0	0	3	6	0	0	34	37	0	55
Norway . . .	0	0	6	4	0	0	70	56	0	67
Netherlands . . .	1	4	118	96	10	9	825	888	12	1,198
Poland - Danzig . . .	0	0	170	180	1	1	1,141	1,209	2	1,772
Portugal . . .	—	—	...	...	—	—	(1) 326	(1) 364	—	645
Romania . . .	...	...	...	...	(2) 0	(2) 0	(2) 262	(2) 192	0	440
United Kingdom . . .	52	32	1,017	1,252	350	330	7,085	11,738	499	15,294
Sweden . . .	—	—	67	55	—	—	624	513	—	711
Switzerland . . .	0	0	54	58	0	2	407	545	3	718
Czecho-Slovakia (7) . . .	0	4	97	171	8	33	854	1,411	45	1,982
Yugoslavia . . .	0	0	30	39	0	0	392	352	1	482
U. S. S. R. . . .	...	...	...	...	(5) 0	(5) 211	(5) 2	(5) 52	420	501
Canada . . .	...	...	73	132	—	—	844	1,040	—	1,400
Colombia . . .	—	—	...	...	—	—	(4) 29	(4) 26	—	91
Ceylon . . .	0	0	2	2	0	0	12	11	0	20
Chosen . . .	...	...	...	...	(1) 0	(1) 0	(1) 216	(1) 73	0	414
Taiwan . . .	...	...	...	...	(2) 0	(2) 0	(2) 0	(2) 2	—	3
Indochina . . .	...	...	...	...	(1) 3	(1) 6	(1) 425	(1) 73	8	219
Japan . . .	...	...	...	...	(3) 1	(3) 90	(3) 5,573	(3) 3,195	106	10,028
Manchukuo . . .	...	...	...	...	(3) 0	(3) 0	(3) 582	(3) 308	0	788
Palestine . . .	0	0	1	1	0	0	9	11	0	15
Algeria . . .	0	0	0	1	0	1	3	4	5	6
Union of South Afr. . .	...	...	...	...	(2) 3	(2) 4	(2) 6	(2) 18	5	28
Australia . . .	0	0	12	7	0	0	94	113	0	151
Total . . .	3,286	3,491	3,415	4,186	33,260	40,308	35,653	40,700	59,828	63,639

(1) Up to February 28. — (2) Up to January 31. — (3) Up to December 31. — (4) Up to November 30. — (5) Up to September 30. — (6) From January 1, 1938 not including trade between Germany and Austria. — (7) For 1939 the data relate only to the period up to March 15.

COUNTRIES	MARCH				SEVEN MONTHS (September 1-March 31)				TWELVE MONTHS (Sept. 1-Aug. 31)	
	EXPORTS		IMPORTS		EXPORTS		IMPORTS		EXPORTS	IMPORTS
	1939	1938	1939	1938	1938-39	1937-38	1938-39	1937-38	1937-38	1937-38
Wool. — Thousand lb.										
<i>Exporting Countries:</i>										
Ireland	1,254	675	9b	95	9,308	4,173	505	474	9,268	734
Argentina	36,498	29,871	—	—	196,031	100,818	—	—	232,741	—
Chile	5,348	3,303	—	—	33,041	21,804	—	—	40,803	—
Peru	—	—	—	—	(3) 5,556	(3) 60	(3) 302	(3) 170	21,089	1,098
Uruguay	—	—	—	—	(2) 4,522	(2) 4,180	—	—	11,830	—
Burma	—	—	—	—	(4) 18,563	(4) 5,975	—	—	85,095	—
China	40	11	0	0	(4) 4,251	(4) 955	—	—	10,121	—
India: by sea	7,950	2,721	787	1,477	(1) 4,678	(1) 4,806	—	0	8,735	2
" by land	—	—	—	—	46,615	21,180	4,290	5,044	40,528	8,049
Iraq	—	—	—	—	—	—	(3) 5,439	(3) 3,148	0	10,856
Iran	—	—	—	—	(3) 6,763	(3) 3,309	(3) 4	(3) 13	6,041	637
Manchukuo	—	—	—	—	(1) 2,004	(1) 3,746	(1) 0	(1) 0	6,074	—
Palestine	20	9	0	2	(3) 1,288	(3) 4,281	(3) 0	(3) 423	6,171	697
Syria and Lebanon	531	40	29	13	79	97	15	42	203	97
Turkey	—	—	—	—	5,165	3,792	216	159	4,941	192
Algeria	1,290	247	165	88	(1) 10,441	(1) 8,584	—	—	12,097	—
Egypt	—	—	—	—	10,155	9,370	1,265	644	21,826	1,321
French Morocco	—	—	—	—	(2) 2,266	(2) 1,166	(2) 159	(2) 26	2,491	104
Tunisia	—	—	—	—	(1) 4,822	(1) 4,052	(1) 9	(1) 13	13,761	60
Un. of S. Africa	—	—	—	—	(1) 1,188	(1) 1,587	(1) 62	(1) 595	2,288	1,016
Australia	91,799	90,732	3,195	2,930	(1) 125,915	(1) 126,131	(2) 886	(2) 1,601	210,461	2,066
(a)	6,182	5,379	31	22	(1) 3,483	(1) 2,981	(2) 509	—	6,989	—
(b)	45,373	43,378	—	—	607,126	513,073	10,179	7,269	732,887	13,481
New Zealand	8,525	6,894	—	—	42,018	31,819	192	73	54,562	403
(a)	—	—	—	—	153,425	138,427	(2) 46	(2) 24	212,471	99
(b)	—	—	—	—	26,092	16,850	(2) 4	(2) 2	41,731	2
<i>Importing Countries:</i>										
Germany (6)	2	0	39,044	32,373	20	4	135,309	130,845	7	279,904
(a)	7	2	2,081	2,346	7	95	17,760	18,303	115	30,713
(b)	—	—	—	—	31	31	(1) 10,745	(1) 6,479	64	19,191
Austria (6)	2,220	4,070	20,516	17,811	29,465	27,988	132,011	98,157	49,520	204,228
Belgo-Luxemb.	2,434	2,344	653	247	17,688	13,814	3,186	2,454	25,792	3,249
Econ. Un.	0	0	251	110	0	0	908	648	0	1,409
Bulgaria	62	31	886	646	514	322	4,676	2,804	503	6,418
Denmark	—	—	—	—	—	—	—	—	—	—
Spain	0	0	93	68	0	0	498	331	0	604
Estonia	4	9	604	492	26	108	3,631	3,331	143	5,578
Finland	5,961	3,490	50,993	25,501	35,181	28,552	266,065	181,143	48,054	367,172
France	—	—	—	—	(1) 719	(1) 963	(1) 2,760	(1) 2,888	1,733	5,706
Greece	0	24	373	150	289	214	1,978	542	408	1,237
Hungary	18	0	6,477	6,603	117	93	42,530	39,886	110	69,620
Italy	225	0	302	322	871	278	2,458	2,328	1,021	4,195
Latvia	0	0	183	121	0	0	1,173	1,246	0	2,008
Lithuania	0	0	119	71	0	0	622	547	0	888
Norway	159	128	243	154	1,065	1,003	1,605	1,226	1,609	1,806
Netherlands	313	97	1,140	728	924	1,459	5,494	3,314	2,174	7,253
(a)	22	93	926	891	168	313	6,294	3,646	516	7,606
(b)	0	0	6,318	4,535	4	49	30,803	21,041	53	44,095
Poland - Danzig	—	—	—	—	(1) 633	(1) 611	(1) 1,761	(1) 1,252	957	2,961
Portugal	—	—	—	—	(2) 18	(2) 68	(2) 443	(2) 939	273	1,898
Romania	33,222	27,117	112,474	91,578	163,010	131,158	560,655	438,459	278,376	843,721
United Kingdom	—	—	4,667	1,728	—	—	18,378	9,762	—	17,163
Sweden	66	0	1,832	1,248	207	90	9,420	6,312	249	13,373
Switzerland	37	31	2,000	3,428	375	388	10,805	12,835	626	30,675
Czecho-Slovakia (7)	9	0	970	509	247	1,012	7,571	2,579	1,380	7,639
Yugoslavia	—	—	—	—	(5) 0	(5) 0	(5) 3,245	(5) 3,880	0	53,101
U. S. S. R.	—	—	—	—	(5) 0	(5) 0	(5) 763	(5) 1,023	0	13,907
Canada	256	265	4,213	3,289	2,055	2,529	11,184	9,127	4,431	15,161
United States	2	18	25,441	3,622	172	126,775	59,380	1,237	89,748	—
Japan	—	—	—	—	(3) 0	(3) 4	(3) 29,716	(3) 15,783	4	102,703
Total	249,829	220,979	287,101	203,198	1,578,771	1,244,389	1,475,302	1,102,210	2,212,707	2,297,844

(a) Unwashed wool. — (b) Washed wool.

(1) Up to February 28. — (2) Up to January 31. — (3) Up to December 31. — (4) Up to November 30. — (5) Up to September 30. — (6) From January 1, 1938 not including trade between Germany and Austria. — (7) For 1939 the data relate only to the period up to March 15.

COUNTRIES	MARCH				THREE MONTHS (January 1-March 31)				TWELVE MONTHS (January 1-Dec. 31)	
	EXPORTS		IMPORTS		EXPORTS		IMPORTS		EXPORTS	IMPORTS
	1939	1938	1939	1938	1939	1938	1939	1938	1938	1938
Butter. — Thousand lb.										
<i>Exporting Countries:</i>										
Bulgaria	0	0	0	0	4	0	0	0	53	0
Denmark	26,257	28,887	0	0	70,288	76,476	0	0	348,433	0
Estonia	2,039	1,742	0	0	5,448	4,980	0	0	32,479	0
Finland	3,325	3,611	0	0	8,069	8,358	0	0	37,763	0
France	306	437	379	33	1,155	1,091	595	240	6,442	1,340
Hungary	60	670	0	0	787	2,630	0	0	7,760	0
Ireland	174	415	130	93	560	1,605	201	93	42,278	644
Latvia	3,362	3,003	0	0	8,609	8,276	0	0	51,460	0
Lithuania	1,054	1,669	0	0	3,505	4,240	0	0	38,387	0
Norway	75	626	0	0	117	802	0	0	1,797	0
Netherlands	9,877	7,917	0	2	22,719	18,554	0	4	112,141	7
Poland-Danzig	1,728	2,423	0	0	5,329	7,386	0	0	29,086	0
Romania . . . . .	...	...	...	...	(2) 22	22	(2) 0	(2) 0	256	0
Sweden	3,896	4,786	0	0	10,975	15,344	(2) 2	(2) 0	62,953	2
Czecho-Slovakia (4)	66	348	49	0	68	1,462	315	0	1,773	2,266
Yugoslavia	0	4	...	...	2	11	...	...	196	...
U. S. S. R. . . . .	...	...	...	...	...	...	...	...	(3) 351	(3) 611
Canada	2,180	26	0	3,794	5,961	137	2	4,888	3,821	5,232
Argentina	2,189	134	...	...	6,109	1,440	...	...	16,156	...
Chile . . . . .	...	...	...	...	...	...	...	...	...	...
Syria and Lebanon	101	37	13	9	320	83	24	24	1,089	64
Turkey . . . . .	...	...	...	...	(1) 0	(1) 2	...	...	4	...
Union of South Afr. . . . .	...	...	...	...	(2) 536	(2) 37	(2) 0	(2) 0	3,536	2
Australia	15,787	23,199	0	0	52,031	76,560	2	0	229,407	0
New Zealand	35,642	40,481	...	...	90,449	109,544	(1) 0	(1) 0	293,233	7
<i>Importing Countries:</i>										
Germany (5)	0	0	15,441	13,854	0	0	44,141	50,177	0	204,113
Austria (5) . . . . .	...	...	...	...	(1) 0	(1) 1,962	(1) 84	(1) 0	2,606	165
Belgo-Luxemb. E. U.	0	4	291	183	4	13	2,064	1,653	51	2,540
Spain . . . . .	...	...	...	...	...	...	...	...	...	...
Greece . . . . .	...	...	...	...	...	...	(1) 214	(1) 108	...	1,151
Italy	112	223	99	37	337	617	165	99	1,883	463
Portugal . . . . .	...	...	...	...	(1) 15	(1) 9	(1) 0	(1) 0	115	0
United Kingdom	1,098	1,124	89,459	94,964	4,519	3,172	253,515	266,604	10,174	1,065,630
Switzerland	2	0	11	99	4	2	29	174	11	340
United States	134	84	119	84	410	207	284	207	1,960	1,144
Peru . . . . .	...	...	...	...	(2) 0	(2) 0	(2) 31	(2) 9	194	355
Burma . . . . .	...	...	46	64	...	...	181	176	...	668
Ceylon . . . . .	...	...	75	44	...	...	227	163	...	858
China . . . . .	...	...	...	...	...	...	(1) 77	(1) 101	...	531
India: by sea	51	529	101	77	1,100	1,784	355	280	5,964	968
" : by land . . . . .	...	...	...	...	...	...	...	...	...	5,908
Netherlands Indies:	...	...	...	...	...	...	...	...	...	...
Java and Madura . . . . .	...	...	...	...	...	...	(1) 968	(1) 1,074	...	7,335
Outer Provinces . . . . .	...	...	...	...	...	...	(1) 342	(1) 401	...	2,568
Indochina . . . . .	...	...	...	...	(1) 0	(1) 0	(1) 743	(1) 86	2	763
Iraq . . . . .	...	...	...	...	...	...	...	...	0	31
Iran . . . . .	...	...	...	...	(1) 0	(1) 0	(1) 37	(1) 0	20	0
Japan . . . . .	...	...	...	...	...	...	...	...	494	0
British Malaya . . . . .	...	...	...	...	(1) 110	(1) 93	(1) 873	(1) 844	626	4,691
Palestine . . . . .	...	...	547	428	...	...	1,437	1,047	...	4,493
Algeria	9	0	236	333	9	0	917	899	11	4,332
Egypt . . . . .	...	...	...	...	(2) 53	(2) 2	(2) 73	(2) 108	335	1,325
French Morocco . . . . .	...	...	...	...	...	...	(1) 472	(1) 500	...	1,953
Tunisia . . . . .	...	...	...	...	(1) 0	(1) 0	(1) 234	(1) 421	2	1,475
Total	109,524	122,383	106,996	114,098	299,624	346,906	308,605	330,380	1,345,309	1,323,975

(1) Up to February 28. — (2) Up to January 31. — (3) Up to September 30. — (4) From 1939 the data relate only to the period up to March 15. — (5) From January 1, 1938 not including trade between Germany and Austria.

COUNTRIES	MARCH				THREE MONTHS (January 1-March 31)				TWELVE MONTHS (Jan. 1-Dec. 31)	
	EXPORTS		IMPORTS		EXPORTS		IMPORTS		EXPORTS	IMPORTS
	1939	1938	1939	1938	1939	1938	1939	1938	1938	1938
Cheese. — Thousand lb.										
<i>Exporting Countries:</i>										
Bulgaria	196	146	0	0	600	886	0	0	3,660	0
Denmark	1,662	1,581	4	2	4,813	4,819	7	4	20,084	29
Estonia	42	40	0	0	181	121	0	0	507	2
Finland	1,129	1,067	2	4	3,175	3,155	9	7	14,930	35
Hungary	108	29	0	0	121	77	0	0	787	2
Ireland	49	75	2	4	271	459	9	9	2,262	40
Italy	4,751	4,023	606	717	12,046	11,091	1,989	2,357	53,286	10,221
Latvia	11	26	0	0	71	75	0	0	309	0
Lithuania	40	108	0	0	238	340	0	0	2,004	4
Norway	516	353	57	49	1,217	924	179	123	3,642	518
Netherlands	10,688	10,959	71	53	28,431	31,412	161	201	128,953	692
Poland-Danzig	49	7	40	29	115	9	88	60	503	317
Romania . . . . .	...	...	...	...	(2) 2	(2) 0	(2) 9	(2) 11	40	73
Switzerland	3,589	4,550	461	229	12,412	10,684	1,100	875	49,348	3,404
Czecho-Slovakia (4)	33	216	154	185	115	944	743	597	1,753	3,071
Yugoslavia	60	106	4	4	192	328	9	13	3,384	46
Canada	891	858	90	86	3,115	1,634	247	245	80,989	1,387
Argentina	384	238	...	...	1,047	758	(1) 11	(1) 7	4,381	108
Turkey . . . . .	...	...	...	...	(2) 0	(1) 0	...	...	46	...
Union of South Afr. . . . .	...	...	...	...	(2) 428	(2) 4	(2) 20	(2) 20	2,716	362
Australia	2,705	3,437	13	13	10,351	10,225	44	31	35,181	143
New Zealand	23,940	22,454	...	...	60,539	56,456	(1) 0	(1) 0	180,381	9
<i>Importing Countries:</i>										
Germany (5)	88	11	6,687	6,321	(1) 280	(1) 60	16,321	18,852	225	72,091
Austria (5) . . . . .	...	...	...	...	(1) 33	(1) 1,239	(1) 203	(1) 220	3,536	1,726
Belgo-Luxemb. B. U.	20	22	4,211	4,085	53	66	12,397	11,583	280	53,350
Spain . . . . .	...	...	...	...	...	...	...	...	...	...
France	2,416	2,264	2,064	3,653	8,014	6,426	7,789	8,153	26,508	31,304
Greece . . . . .	...	...	...	...	(1) 4	(1) 24	(1) 536	(1) 174	172	1,534
Portugal . . . . .	...	...	...	...	(1) 42	(1) 24	(1) 18	(1) 20	154	245
United Kingdom	282	412	28,678	22,886	963	1,100	78,441	74,120	4,859	329,202
Sweden . . . . .	...	...	536	185	...	...	1,096	487	...	2,687
U. S. S. R. . . . .	...	...	...	...	...	...	...	...	(3) 35	(3) 192
United States	132	139	4,881	4,376	337	326	13,221	11,230	1,482	54,432
Chile . . . . .	...	...	...	...	...	...	...	...	42	79
Peru . . . . .	...	...	...	...	...	...	(2) 49	(2) 68	...	816
Burma . . . . .	...	...	11	11	...	...	33	29	...	90
Ceylon . . . . .	...	...	24	18	...	...	44	35	...	243
India: by sea	0	0	75	101	9	0	258	262	2	1,164
Netherlands Indies: . . . . .	...	...	...	...	...	...	...	...	...	...
Java and Madura . . . . .	...	...	...	...	...	...	(1) 218	(1) 273	...	2,035
Indochina . . . . .	...	...	...	...	(1) 0	(1) 0	(1) 93	(1) 71	2	578
Iraq . . . . .	...	...	...	...	...	...	...	...	11	62
Iran . . . . .	...	...	...	...	(1) 0	(1) 0	(1) 0	(1) 0	0	0
Japan . . . . .	...	...	...	...	...	...	...	...	11	11
British Malaya . . . . .	...	...	...	...	(1) 4	(1) 4	(1) 51	(1) 71	33	392
Palestine	9	7	218	179	11	9	595	485	35	2,112
Syria and Lebanon	77	44	60	97	132	73	139	181	783	591
Algeria	0	4	919	1,080	2	7	3,221	2,769	35	12,432
Egypt . . . . .	...	...	...	...	(2) 7	(2) 7	(2) 304	(2) 553	90	7,699
French Morocco . . . . .	...	...	...	...	...	...	(1) 505	(1) 642	...	3,444
Tunisia . . . . .	...	...	...	...	(1) 0	(1) 13	(1) 417	(1) 432	62	2,683
Total	53,867	53,176	49,868	44,367	149,371	143,779	140,574	135,270	627,562	601,657

(1) Up to February 28. — (2) Up to January 31. — (3) Up to September 30. — (4) For 1939 the data relate only to the period up to March 15. — (5) From January 1, 1938 not including trade between Germany and Austria.

COUNTRIES	MARCH				SIX MONTHS (October 1-March 31)				TWELVE MONTHS (Oct. 1-Sept. 30)	
	EXPORTS		IMPORTS		EXPORTS		IMPORTS		EXPORTS	IMPORTS
	1937	1938	1939	1938	1938-39	1937-38	1938-39	1937-38	1937-38	1937-38
Cacao. — Thousand lb.										
<i>Exporting Countries:</i>										
Grenada . . . . .	...	...	—	—	(2) 2,330	(2) 1,389	—	—	9,207	—
Haiti . . . . .	...	...	—	—	(1) 2,813	(1) 2,344	—	—	3,448	—
Dominican Republic . . . . .	...	...	—	—	(3) 7,659	(3) 7,388	—	—	62,265	—
Brazil . . . . .	...	...	—	—	(3) 83,699	(3) 83,872	—	—	282,120	—
Equador . . . . .	...	...	—	—	(1) 9,449	(2) 9,107	—	—	41,013	—
Trinidad . . . . .	...	...	—	—	(1) 7,352	(1) 13,329	—	—	42,102	—
Ceylon	754	873	—	—	4,372	5,505	—	—	8,836	—
Netherlands Indies:										
Java and Madura . . . . .	...	...	—	—	(1) 1,689	(1) 1,325	—	—	3,415	—
Cameroon: Fr. m. t.	9,760	10,382	—	—	55,023	39,941	—	—	59,238	—
Ivory Coast	14,771	20,265	—	—	49,002	60,431	—	—	110,434	—
Gold Coast	86,514	10,181	—	—	438,554	108,832	—	—	513,000	—
Madagascar . . . . .	...	...	—	—	(1) 439	(1) 276	—	—	545	—
Nigeria and Came- roon	34,099	28,790	—	—	180,916	142,659	—	—	211,819	—
São Thomé and Prin- cipe Islands . . . . .	...	...	—	—	(1) 12,716	(1) 13,706	—	—	24,978	—
Togo: Fr. m. t.	3,234	2,723	—	—	10,981	5,534	—	—	14,925	—
<i>Importing Countries:</i>										
Germany (5)	0	0	21,061	13,532	0	675	110,670	87,107	675	170,722
Austria (5)	—	—	—	—	—	—	(1) 9,841	(1) 4,782	—	14,376
Belgo-Luxemb. E. U.	0	108	2,690	4,971	0	117	13,433	13,849	130	24,513
Bulgaria	—	—	291	108	—	—	1,411	913	—	1,576
Denmark	0	0	1,373	1,318	11	0	6,636	5,481	7	11,047
Spain	—	—	—	—	—	—	—	—	—	—
Estonia	—	—	157	77	—	—	562	516	—	1,041
Finland	—	—	68	33	—	—	293	190	—	364
France	0	0	9,182	7,123	300	4	53,692	47,016	51	94,118
Greece	—	—	—	—	—	—	(1) 1,792	(1) 1,806	—	3,655
Hungary	—	—	1,396	791	—	—	6,737	3,931	—	9,330
Ireland	—	—	1,711	774	—	—	4,171	1,777	—	3,847
Italy	—	—	1,797	525	—	—	3,880	10,218	—	20,239
Latvia	0	0	269	119	0	0	1,235	897	0	1,713
Lithuania	—	—	126	170	—	—	710	646	—	1,332
Norway	0	0	1,559	787	0	0	4,471	3,832	0	8,730
Netherlands	49	459	21,508	22,988	1,149	3,486	92,464	89,526	5,379	164,540
Poland-Danzig	—	—	1,499	1,446	—	—	10,227	9,429	—	17,719
Portugal	—	—	—	—	(1) 0	(1) 0	0	485	2	1,096
Romania	—	—	—	—	—	—	(2) 1,561	(2) 1,080	—	3,607
United Kingdom	545	595	64,662	17,983	7,198	14,727	195,451	86,880	17,267	282,746
Sweden	—	—	1,755	1,413	—	—	9,498	7,185	—	14,070
Switzerland	0	53	3,455	1,964	44	190	11,532	8,336	262	18,503
Czecho-Slovakia (6)	—	—	775	2,249	—	—	12,123	12,840	—	23,338
Yugoslavia	—	—	300	357	—	—	1,587	1,488	—	2,815
U. S. S. R.	—	—	—	—	—	—	—	—	—	32,558
Canada	—	—	1,607	1,841	—	—	10,602	9,030	—	21,830
United States	—	—	98,097	61,635	—	—	296,055	225,099	—	466,297
Argentina	—	—	—	—	—	—	(1) 3,982	(1) 4,581	—	12,877
Chile	—	—	—	—	—	—	(3) 348	(3) 368	—	1,982
Colombia	—	—	—	—	—	—	(4) 1,157	(4) 428	—	4,535
Peru	—	—	—	—	(2) 0	(2) 0	(2) 115	(2) 315	0	930
Uruguay	—	—	—	—	—	—	(4) 302	(4) 315	—	1,548
Iran	—	—	—	—	—	—	(1) 64	(1) 13	—	31
Japan	—	—	—	—	—	—	(3) 796	(3) 1,874	—	5,108
British Malaya	—	—	—	—	(1) 35	(1) 31	(1) 20	(1) 35	62	68
Palestine	—	—	88	40	—	—	437	373	—	822
Syria and Lebanon	—	—	2	0	—	—	2	0	—	7
Algeria	0	0	0	11	0	0	265	148	0	470
Egypt	—	—	—	—	—	—	(2) 503	(2) 291	—	796
French Morocco	—	—	—	—	—	—	(1) 73	(1) 55	—	95
Tunisia	—	—	—	—	—	—	(1) 7	(1) 0	—	4
Union of South Africa	—	—	—	—	—	—	(2) 897	(2) 1,199	—	3,968
Australia	0	0	988	1,825	0	0	6,457	7,053	7	17,315
New Zealand	—	—	—	—	—	—	(1) 1,451	(1) 1,801	—	5,512
Total	149,726	74,429	236,417	144,080	875,731	514,868	883,070	653,188	1,411,187	1,471,790

(1) Up to February 28. — (2) Up to January 31. — (3) Up to December 31. — (4) Up to November 30. — (5) From January 1, 1938 not including trade between Germany and Austria. — (6) For 1939 the data relate only to the period up to March 15.

COUNTRIES	MARCH				NINE MONTHS (July 1-March 31)				TWELVE MONTHS (July 1-June 30)	
	EXPORTS		IMPORTS		EXPORTS		IMPORTS		EXPORTS	IMPORTS
	1939	1938	1939	1938	1938-39	1937-38	1938-39	1937-38	1937-38	1937-38
Tea. — Thousand lb.										
<i>Exporting Countries:</i>										
Ceylon	18,435	20,534	0	0	159,611	155,049	0	0	231,823	0
China . . . . .	...	...	...	...	(1) 71,137	(1) 53,255	(1) 2,668	(1) 99	72,746	485
Chosen . . . . .	...	...	...	...	(1) 130	(1) 77	(1) 0	(1) 2	95	2
Taiwan . . . . .	...	...	...	...	(2) 17,628	(2) 15,831	(2) 0	(2) 53	21,239	53
India: by sea	8,051	10,311	57	115	310,218	307,656	2,769	3,206	346,145	3,316
" : by land . . . . .	...	...	—	—	(3) 6,898	(3) 7,703	—	—	13,678	—
Netherlands Indies:	...	...	...	...	(1) 82,028	(1) 78,752	(1) 392	(1) 355	123,428	463
Java and Madura . . . . .	...	...	...	...	(1) 21,078	(1) 20,353	—	—	31,445	—
Outer Provinces . . . . .	...	...	...	...	(1) 3,364	(1) 3,362	(1) 787	(1) 866	4,350	1,382
Indochina . . . . .	...	...	...	...	(3) 23,129	(3) 31,048	(3) 86	(3) 110	39,432	112
Japan . . . . .	...	...	...	...	...	...	...	...	...	...
<i>Importing Countries:</i>										
Germany (6)	4	7	1,332	783	112	251	10,814	8,424	304	10,992
Austria (6) . . . . .	—	—	...	...	—	—	(1) 935	(1) 602	—	730
Belgo-Luxemb. E.U.	0	0	57	57	2	4	478	465	7	635
Bulgaria	—	—	0	7	—	—	51	77	—	82
Denmark	0	0	148	90	33	26	1,074	875	42	1,261
Spain	—	—	—	—	—	—	—	—	—	—
Estonia	—	—	11	7	—	—	77	75	—	99
Finland	—	—	31	22	—	—	245	214	—	273
France	0	2	291	207	9	15	2,156	2,207	20	2,976
Greece . . . . .	—	—	...	...	—	—	(1) 320	(1) 212	—	313
Hungary	—	—	64	24	—	—	507	379	—	487
Ireland	0	4	2,637	2,355	31	866	18,949	19,738	897	24,784
Italy	0	—	24	33	—	—	161	214	—	311
Latvia	0	0	7	7	0	0	51	53	—	73
Lithuania	—	—	7	4	—	—	66	64	—	90
Norway	0	0	35	24	0	0	284	293	—	377
Netherlands	22	2	2,610	2,399	152	170	22,172	19,850	207	27,157
Poland-Danzig	0	0	481	441	0	0	3,142	2,866	2	3,810
Portugal . . . . .	—	—	...	...	—	—	(1) 209	(1) 256	0	377
Romania . . . . .	—	—	...	...	—	—	(2) 465	(2) 406	—	518
United Kingdom	7,621	7,705	25,796	27,002	48,758	52,232	426,411	430,075	69,977	526,336
Sweden	—	—	110	86	—	—	866	721	—	1,003
Switzerland	0	2	141	152	7	18	1,446	1,191	22	1,581
Czecho-Slovakia (7)	—	—	40	90	—	—	926	1,003	—	1,204
Yugoslavia	—	—	26	29	—	—	410	364	—	443
U. S. S. R. . . . .	...	...	...	...	(5) 289	(5) 6,680	(5) 9,405	(5) 10,203	8,505	28,801
Canada	—	—	4,519	3,585	—	—	29,037	28,949	—	38,960
United States	—	—	8,576	7,139	—	—	67,224	68,308	—	85,839
Argentina . . . . .	—	—	...	...	—	—	(1) 3,269	(1) 3,009	—	4,142
Chile . . . . .	—	—	...	...	—	—	(3) 3,170	(3) 3,245	—	4,766
Peru . . . . .	—	—	...	...	—	—	(2) 668	(2) 1,036	—	1,501
Uruguay . . . . .	—	—	...	...	—	—	(4) 249	(4) 176	—	406
Burma	4	37	247	3,406	132	168	1,455	7,004	1,574	7,599
Iraq . . . . .	...	...	...	...	(3) 55	(3) 106	(3) 3,470	(3) 3,560	185	7,099
Iran . . . . .	...	...	...	...	(1) 0	(1) 0	(1) 11,526	(1) 10,631	—	17,749
British Malaya . . . . .	...	...	...	...	(1) 838	(1) 814	(1) 3,369	(1) 4,043	1,332	5,670
Manchukuo . . . . .	...	...	...	...	...	...	(3) 11,248	(3) 6,574	—	12,174
Palestine	0	0	79	53	0	0	467	527	2	686
Syria and Lebanon	0	0	46	26	0	0	395	293	0	340
Turkey . . . . .	—	—	...	...	—	—	(1) 1,369	(1) 1,579	—	2,161
Algeria	0	0	168	269	2	2	2,410	2,551	4	3,827
Egypt . . . . .	—	—	...	...	—	—	(2) 9,747	(2) 9,059	—	16,590
French Morocco . . . . .	—	—	...	...	(1) 611	(1) 414	(1) 13,221	(1) 13,510	833	19,178
Tunisia . . . . .	—	—	...	...	—	—	(1) 3,058	(1) 3,036	—	4,594
Union of South Afr. . . . .	...	...	...	...	(2) 306	(2) 214	(2) 9,892	(2) 9,665	472	15,516
Australia	42	44	3,677	4,535	373	355	36,330	33,510	454	45,179
New Zealand . . . . .	...	...	...	...	(1) 86	(1) 90	(1) 7,868	(1) 6,949	139	12,214
Total	34,179	38,648	51,217	52,947	747,017	735,511	727,764	722,732	969,361	946,718

(1) Up to February 28. — (2) Up to January 31. — (3) Up to December 31. — (4) Up to November 30. — (5) Up to September 30. — (6) From January 1, 1938 not including trade between Germany and Austria. — (7) For 1939 the data relate only to the period up to March 15.

COUNTRIES	MARCH				NINE MONTHS (July 1-March 31)				TWELVE MONTHS (July 1-June 30)	
	EXPORTS		IMPORTS		EXPORTS		IMPORTS		EXPORTS	IMPORTS
	1937	1938	1937	1938	1938-39	1937-38	1938-39	1937-38	1937-38	1937-38
Coffee. — Thousand lb.										
<i>Exporting Countries:</i>										
Costa-Rica . . . . .	...	...	—	—	(1) 30,572	(1) 30,715	—	—	56,006	—
Guadaloupe . . . . .	...	...	—	—	(1) 201	(1) 437	—	—	816	—
Jamaica . . . . .	...	...	—	—	(1) 5,564	(1) 4,758	—	—	8,296	—
Haiti . . . . .	...	...	—	—	(2) 32,831	(2) 25,948	—	—	50,341	—
Mexico . . . . .	...	...	—	—	(4) 11,559	(4) 9,676	—	—	71,792	—
Nicaragua . . . . .	...	...	—	—	(3) 3,878	(3) 1,624	—	—	30,905	—
Dominican Republic . . . . .	...	...	—	—	(3) 7,670	(3) 8,378	—	—	19,213	—
Salvador . . . . .	...	...	—	—	(4) 17,899	(4) 19,890	—	—	116,843	—
Brazil	168,178	186,247	—	—	1,593,293	1,345,653	—	—	1,933,410	—
Colombia	40,131	46,628	—	—	399,042	399,997	—	—	531,757	—
British Guiana . . . . .	...	...	—	—	(6) 18	(6) 108	—	—	227	—
Dutch Guiana . . . . .	...	...	—	—	(1) 14,206	(1) 3,955	—	—	5,655	—
Peru . . . . .	...	...	—	—	(2) 4,672	(2) 4,050	(1) 2	(2) 7	5,481	9
Aden: by sea . . . . .	...	...	—	—	(2) 6,365	(2) 3,618	—	—	7,200	—
India: by sea	6,446	3,946	0	0	15,719	11,424	2	7	16,405	7
Netherlands Indies:										
Java and Madura . . . . .	...	...	—	—	(1) 38,484	(1) 60,158	—	—	71,529	—
Outer Provinces . . . . .	...	...	—	—	(1) 78,851	(1) 96,111	—	—	118,957	—
Indochina	295	24	...	...	1,036	227	(1) 79	(1) 93	811	141
Angola . . . . .	...	...	—	—	(4) 21,707	(4) 19,057	—	—	30,830	—
Belgian Congo . . . . .	...	...	—	—	(1) 27,622	(1) 24,163	—	—	38,766	—
Ivory Coast . . . . .	...	...	—	—	(3) 12,165	(3) 10,318	—	—	29,798	—
Kenya . . . . .	...	...	—	—	(4) 8,591	(4) 7,789	—	—	36,156	—
Uganda . . . . .	...	...	—	—	(4) 14,416	(4) 12,465	—	—	28,149	—
Madagascar	2,727	4,405	—	—	69,874	55,947	—	—	70,828	—
Tanganyika . . . . .	...	...	—	—	(3) 19,659	(3) 21,363	—	—	32,342	—
New Caledonia . . . . .	...	...	—	—	(3) 1,874	(3) 1,398	—	—	4,460	—
New Hebrides . . . . .	...	...	—	—	(2) 617	(2) 710	—	—	1,235	—
<i>Importing Countries:</i>										
Germany (7)	0	0	27,560	31,978	0	0	314,039	292,446	0	400,425
Austria (7) . . . . .	...	...	...	...	(1) 0	(1) 0	(1) 12,192	(1) 7,566	0	10,986
Belgo-Luxemb. E. U.	35	1,226	9,947	12,906	3,818	3,876	84,867	88,985	4,526	117,632
Bulgaria . . . . .	...	...	90	134	...	...	968	955	1,263	...
Denmark	15	0	6,475	7,128	518	472	71,924	49,730	606	62,032
Spain . . . . .	...	...	29	...	...	...	...	...	...	...
Estonia . . . . .	...	...	93	108	...	...	214	218	...	280
Finland . . . . .	...	...	4,658	4,475	...	...	41,178	37,554	...	51,050
France	0	0	30,702	34,423	57	62	288,597	309,376	66	417,614
Greece . . . . .	...	...	...	...	...	...	(1) 9,704	(1) 8,966	...	16,343
Hungary . . . . .	...	...	520	311	...	...	3,594	3,258	...	4,334
Ireland	0	2	93	108	11	2	381	419	2	617
Italy	0	0	9,390	6,744	7	4	59,247	56,932	11	77,050
Latvia	0	0	42	29	0	0	333	295	0	443
Lithuania . . . . .	...	...	49	...	...	...	289	265	...	375
Norway	13	42	4,610	5,229	88	168	29,269	26,171	205	38,239
Netherlands	1,179	963	8,916	15,282	11,526	5,042	88,273	77,987	8,874	101,631
Poland-Danzig	0	0	1,230	1,085	2	11	10,690	8,922	13	12,502
Portugal . . . . .	...	...	...	...	(1) 1,091	(1) 1,396	(1) 8,322	(1) 8,505	2,310	14,288
Romania . . . . .	...	...	...	...	...	...	(2) 4,389	(2) 3,633	...	6,475
United Kingdom	529	1,184	14,304	10,792	8,962	5,584	38,876	36,881	8,971	50,795
Sweden . . . . .	...	...	8,770	9,817	...	...	87,363	76,915	...	105,716
Switzerland	0	0	2,740	2,595	0	2	27,271	20,212	4	31,370
Czecho-Slovakia (8) . . . . .	...	...	930	2,152	...	...	16,347	18,085	...	24,974
Yugoslavia . . . . .	...	...	1,929	1,473	...	...	12,593	10,604	...	14,800
U. S. S. R. . . . .	...	...	...	...	...	...	893	187	...	1,398
Canada	15	20	3,975	5,223	269	280	30,796	30,076	401	41,950
United States	1,248	814	197,581	186,756	7,471	5,207	1,503,051	1,256,061	7,421	1,734,036
Argentina . . . . .	...	...	...	...	...	...	(1) 35,221	(1) 36,048	...	58,268
Chile . . . . .	...	...	...	...	...	...	(3) 3,521	(3) 4,738	...	8,799
Uruguay . . . . .	...	...	...	...	...	...	(4) 2,780	(4) 2,328	...	5,754
Ceylon	0	0	247	326	0	0	2,456	2,714	2	3,283
Burma	57	11	22	22	88	18	231	220	29	293
Iraq . . . . .	...	...	...	...	...	...	(3) 761	(3) 822	...	2,273
Iran . . . . .	...	...	...	...	(1) 0	(1) 0	(1) 745	(1) 238	...	633
Japan . . . . .	...	...	...	...	(1) 5,027	(1) 3,629	(3) 4,458	(3) 12,009	...	17,403
British Malaya . . . . .	...	...	...	...	...	...	(1) 13,146	(1) 16,083	5,505	23,140
Palestine	0	0	284	650	0	0	2,130	5,880	0	4,830
Syria and Lebanon	0	0	421	333	0	0	2,205	2,255	0	3,311
Turkey . . . . .	...	...	...	...	...	...	(1) 7,857	(1) 6,900	...	11,477
Algeria	0	0	3,400	3,243	4	4	28,116	25,078	7	35,120
Egypt . . . . .	...	...	...	...	...	...	(2) 6,706	(2) 9,930	...	21,511
French Morocco . . . . .	...	...	...	...	...	...	(1) 3,885	(1) 3,840	...	5,937
Tunisia . . . . .	...	...	...	...	...	...	(1) 2,359	(1) 2,187	4	3,415
Union of South Afr. . . . .	...	...	...	...	(2) 11	(2) 13	(2) 20,986	(2) 18,314	18	34,425
Australia	7	0	602	428	79	26	2,685	2,612	46	4,445
New Zealand . . . . .	...	...	...	...	(1) 0	(1) 2	(1) 351	(1) 1,537	2	1,744
Total	220,875	245,512	339,516	343,711	2,467,311	2,205,747	2,885,942	2,583,044	3,357,231	3,584,836

(1) Up to February 28. — (2) Up to January 31. — (3) Up to December 31. — (4) Up to November 30. — (5) Up to October 31. — (6) Up to September 30. — (7) From January 1, 1938 not including trade between Germany and Austria. — (8) For 1939 the data relate only to the period up to March 15.

STOCKS

Total wheat in the United States ⁽¹⁾

LOCATION	First day of month				
	April 1939	January 1939	October 1938	April 1938	April 1937
	thousand cents				
On farms	113,454	168,714	244,193	74,791	42,878
In interior mills and elevators	55,588	83,207	104,745	44,098	23,405
Commercial wheat in store	49,613	77,249	83,564	32,656	20,845
In merchant mills and elevators ⁽²⁾	43,436	56,051	65,225	41,362	37,876
Stored for others in merchant mills ⁽³⁾	6,052	8,572	12,894	6,549	1,714
<i>Total U.S. wheat as grain</i>	<i>268,143</i>	<i>393,793</i>	<i>510,621</i>	<i>199,456</i>	<i>126,718</i>
Flour (in terms of grain) in merchant mills ⁽²⁾	11,683	13,048	13,153	12,727	12,275
<i>Total U.S. wheat</i>	<i>279,826</i>	<i>406,841</i>	<i>523,774</i>	<i>212,183</i>	<i>138,993</i>
Canadian wheat in store in bond in the U. S.	1,064	4,724	1,096	666	7,213
<i>Total wheat in the U. S.</i>	<i>280,890</i>	<i>411,565</i>	<i>524,870</i>	<i>212,849</i>	<i>146,206</i>

(1) Incomplete data: wheat in transit is not included, wheat-flour only if in mills. See next table. — (2) The figures of the partial quarterly census taken by the Bureau of Census (see next table) have been increased to allow for stocks in all mills.

Wheat and wheat-flour held by commercial mills in the United States ⁽¹⁾.

LOCATION	Last day of month				
	March 1939	December 1938	September 1938	March 1938	March 1937
	thousand cents				
Wheat stocks, the property of commercial millers:					
Wheat held in mills, and mill-elevators attached to mills	40,526	52,296	60,333	38,052	35,452
Wheat in other elevators ⁽²⁾	9,916	17,923	18,620	7,903	8,058
Wheat in transit to merchant mills and bought to arrive ⁽³⁾	5,129	7,468	8,012	5,190	5,771
<i>Total</i>	<i>55,571</i>	<i>77,687</i>	<i>86,965</i>	<i>51,145</i>	<i>49,281</i>
Wheat-flour in mills and warehouses, and in transit, sold and unsold	7,575	8,461	8,455	8,137	7,986
Wheat stored for others in mills and mill-elevators	5,647	7,998	11,927	6,025	1,604
<i>Grand total ⁽⁴⁾</i>	<i>72,117</i>	<i>97,858</i>	<i>111,057</i>	<i>68,878</i>	<i>62,375</i>

(1) Partial census by the "Bureau of Census", including mills accounting for over 90% of the total capacity of all commercial mills. — (2) In country elevators, in public terminal elevators and in private terminal elevators not attached to mills. — (3) Only about one-third of the quantities given here are actually in transit. — (4) Including flour in terms of grain.

Commercial cereals in store in Canada and the United States.

PRODUCTS AND LOCATION	Friday or Saturday nearest 1st of month ⁽¹⁾				
	May 1939	April 1939	March 1939	May 1938	May 1937
	thousand cents				
WHEAT:					
Canadian in Canada	80,451	83,439	85,827	24,617	37,160
U.S. in Canada	12	65	91	448	0
U.S. in the United States	44,911	49,613	57,284	25,915	15,752
Canadian in the United States	0	1,064	2,167	429	6,005
TOTAL	125,374	134,181	145,369	51,409	58,917
RYE:					
Canadian in Canada	1,280	1,216	1,180	687	990
U.S. in Canada	13	13	13	330	0
U.S. in the United States	4,006	4,273	4,277	1,471	1,428
Canadian in the United States	0	24	24	0	42
TOTAL	5,299	5,526	5,494	2,488	2,460
BARLEY:					
Canadian in Canada	3,350	3,252	3,026	3,914	3,218
U.S. in Canada	0	0	0	115	0
U.S. in the United States	4,260	4,887	5,628	3,606	4,055
Canadian in the United States	0	0	0	24	963
TOTAL	7,610	8,139	8,654	7,659	8,236
OATS:					
Canadian in Canada	3,052	3,260	2,939	2,788	2,672
U.S. in Canada	4	45	130	324	0
U.S. in the United States	3,300	4,039	4,688	4,975	3,771
Canadian in the United States	0	0	0	0	0
TOTAL	6,356	7,344	7,757	8,087	6,443
MAIZE:					
U.S. in Canada	1,249	1,691	2,112	1,986	0
Argentine in Canada	15	16	16	88	967
South African in Canada	155	195	238	783	271
Australian in Canada	70	88	99	0	0
U.S. in the United States	21,987	24,495	26,594	22,794	3,750
Of other origin in the United States	0	0	0	0	611
TOTAL	23,476	26,485	29,059	25,651	5,599

⁽¹⁾ Friday for Canada, Saturday for the United States.

Quantities of cereals at sea with first destination Europe.

PRODUCTS	Saturday nearest 1st of month				
	May 1939	April 1939	March 1939	May 1938	May 1937
	thousand cents				
Wheat	18,907	17,582	22,939	24,130	29,626
Wheat-flour	437	689	837	739	725
TOTAL ⁽¹⁾	19,531	18,566	24,139	25,196	30,620
Rye	514	293	58	14	326
Barley	1,908	3,424	2,428	1,368	1,552
Oats	1,315	1,210	896	835	1,091
Maize	6,773	6,542	6,797	6,605	14,275

⁽¹⁾ Including flour in terms of grain.

AUTHORITY: Broomhall's Corn Trade News, Liverpool.

Commercial cereals (¹) and oilseeds in store in Argentina

PRODUCTS	First day of month				
	April 1939	March 1939	February 1939	April 1938	April 1937
	1,000 centals				
Rye	1,716	1,582	1,289	242	514
Barley	3,370	4,097	3,570	2,098	2,076
Oats	4,780	5,469	5,636	3,568	4,113
Maize in the ports	343	525	2,011	27	—
Maize in other positions	946	1,938	3,349	285	—
TOTAL	1,289	2,463	5,360	312	3,566
Canaryseed	309	321	279	301	130
Linseed in the ports	5,645	5,682	4,331	5,445	—
Linseed other positions	5,354	6,627	6,614	5,934	—
TOTAL	10,999	12,309	²) 10,945	11,379	15,222
Sunflowerseed	134	178	322	—	—

(¹) Figures for wheat of the 1938-39 crop in store have been withheld by governmental order. — (²) Including 445,000 centals of old crop.

Commercial wheat in store in Australia.

Stocks of wheat, stacked at country sidings and terminal ports in the States of New South Wales, Victoria, South Australia and Western Australia, during the last week of each month, amounted in April 1939 to 30,723,000 centals, in March 1939 to 36,543,000 centals, in February 1939 to 41,814,000 centals, in April 1938 to 36,334,000 centals and in April 1937 to 30,654,000 centals.

Wheat and wheat-flour in the Union of South Africa.

LOCATION	Last day of month				
	March 1939	February 1939	January 1939	March 1938	March 1937
	thousand centals				
Wheat held by millers:					
South African	4,235	3,650	2,652	3,749	4,502
Imported	30	47	102	4	3
Wheat held by co-operatives	820	678	1,267	364	1,780
Total	5,085	4,375	4,021	4,117	6,285
Wheat-flour and boermeal (¹) held by millers	275	261	243	253	219
Grand total (²)	5,455	4,727	4,349	4,454	6,577

(¹) 140 lb. of wheat flour or 165 lb. of boermeal correspond to 200 lb. of wheat. — (²) Including flour in terms of grain.

Cereals and potatoes belonging to farmers in Germany ⁽¹⁾.

PRODUCTS	April 30, 1939	Mar. 31, 1939	April 30, 1938	April 30, 1937	April 30, 1939	Mar. 31, 1939	April 30, 1938	April 30, 1937
	Percentage of total production				Stocks in thousand centals			
Winter wheat	11	16	4	6	12,300	18,000	3,400	5,400
Spring wheat	12	20	6	6	1,300	2,200	600	400
Rye	14	19	7	10	26,600	36,000	10,400	16,300
Winter barley	13	18	8	8	4,500	6,200	1,800	2,000
Spring barley	13	23	11	9	7,700	13,600	6,200	4,500
Oats	28	40	22	22	39,300	56,100	28,500	27,200
Meslin	21	32	16	17	5,900	9,000	4,100	3,500
Late potatoes	18	30	19	19	193,100	321,800	212,900	187,200

⁽¹⁾ 1937 frontiers.AUTHORITY: *Reichsnährstand* (The absolute figures are calculated by the International Institute of Agriculture).Cereals ⁽²⁾ in elevators, mills, manufacturing establishments, etc. ⁽³⁾ in Germany ⁽³⁾.

PRODUCTS AND LOCATION	Last day of month				
	April 1939	March 1939	February 1939	April 1938	April 1937
	thousand centals				
WHEAT:					
Grain in mills and elevators (a)	52,397	54,426	53,462	30,525	14,321
Grain held by manufactures, etc. (b) . . . .	...	988	818	168	71
Flour for bread in mills, etc. (a)	3,025	3,492	4,079	2,743	1,545
Flour for bread held by manufactures, etc. (b) . . . . .	...	26	44	37	26
TOTAL ⁽⁴⁾	59,812	59,432	34,167	16,380
RYE:					
Grain in mills and elevators (a)	59,357	60,702	57,530	32,221	17,384
Grain held by manufactures, etc. (b) . . . .	...	1,731	1,290	1,365	309
Flour for bread in mills, etc. (a)	2,187	2,368	2,533	1,819	1,193
Flour for bread held by manufactures, etc. (b) . . . . .	...	9	13	11	9
TOTAL ⁽⁴⁾	65,367	61,963	35,764	19,141
BARLEY:					
In mills and elevators (a)	7,771	8,691	9,500	5,221	1,448
In manufacturing establishments, etc. (b) . .	4,846	6,980	8,404	3,435	1,629
TOTAL	12,617	15,671	17,904	8,656	3,077
OATS:					
In mills and elevators (a)	6,548	6,682	6,219	4,747	2,105
In manufacturing establishments, etc. (b) . .	877	884	809	697	606
TOTAL	7,425	7,566	7,028	5,444	2,711
MESLIN . . . . .	...	783	723	439	121
MAIZE:					
In mills and elevators (a) . . . . .	...	2,705	5,571	5,318	6,367
In manufacturing establishments, etc. (b) . .	...	448	511	337	205
TOTAL . . . . .	...	3,153	6,082	5,655	6,572

⁽¹⁾ Excluding quantities in transit and stocks in the hands of bakers. — ⁽²⁾ Including cereals (a) in elevators and commercial mills, and (b) in the hands of manufacturers of mixed feedstuffs, malt, coffee substitutes and other foodstuffs, and in breweries. — ⁽³⁾ 1937 frontiers. — ⁽⁴⁾ Including flour in terms of grain, on a basis which, in accordance with government regulations on milling, has been altered several times.

Imported grain and flour at the ports of the United Kingdom and Ireland.

PRODUCTS AND LOCATION	First day of month				
	May 1939	April 1939	March 1939	May 1938	May 1937
	thousand centals				
WHEAT AS GRAIN:					
United Kingdom	11,256	11,928	8,904	4,382	5,736
Ireland	2,760	2,040	1,584	706	696
TOTAL	14,016	13,968	10,488	5,088	6,432
WHEAT-FLOUR (calculated as grain):					
United Kingdom	¹⁾ 480	¹⁾ 432	¹⁾ 408	²⁾ 648	936
WHEAT AND FLOUR, TOTAL	14,496	14,400	10,896	5,736	7,368
BARLEY:					
United Kingdom	840	920	1,080	880	1,200
OATS:					
United Kingdom	224	240	224	256	288
MAIZE:					
United Kingdom	1,296	1,584	1,944	2,117	2,616
Ireland	1,104	1,032	1,128	283	408
TOTAL	2,400	2,616	3,072	2,400	3,024

(¹⁾ Including 10,000 centals in Irish ports. — (²⁾ Including 4,000 centals in Irish ports.

AUTHORITY: *Broomhall's Corn Trade News, Liverpool.*

Imported cereals in Antwerpen, Rotterdam and Amsterdam.

PRODUCTS AND LOCATION	Saturday nearest 1st of month (¹⁾)				
	May 1939	April 1939	March 1939	May 1938	May 1937
	thousand centals				
WHEAT:					
Antwerpen	674	1,156	916	1,213	1,367
Rotterdam	2,167	2,452	2,428	876	516
Amsterdam	93	42	40	14	12
RYE:					
Antwerpen	84	57	58	15	28
Rotterdam	7	0	0	44	51
Amsterdam	0	0	0	0	0
BARLEY:					
Antwerpen	67	84	122	209	388
Rotterdam	0	7	25	33	6
Amsterdam	8	3	11	1	1
OATS:					
Antwerpen	15	9	12	22	27
Rotterdam	0	0	3	12	0
Amsterdam	43	45	47	24	22
MAIZE:					
Antwerpen	105	93	124	34	195
Rotterdam	17	26	115	121	77
Amsterdam	40	55	95	13	5

(¹⁾ For Antwerpen the data refer to the last day of the preceding month, for Amsterdam to the first day of the month indicated.

AUTHORITIES: *Nederlandsche Silo- Elevator- en Graanfactor Mij., Amsterdam, and Chamber of Commerce and Industry for Rotterdam, Rotterdam.*

Wheat in collective depots ⁽¹⁾ in Italy.

SPECIFICATION	Last day of month				
	April 1939	March 1939	February 1939	April 1938	April 1937
	thousand cents				
Deliveries:					
During the month	132	313	313	296	257
Since the beginning of the coml. season ⁽²⁾	90,759	90,627	90,314	87,077	60,254
Sales:					
During the month	6,654	5,644	5,460	5,170	2,679
Since the beginning of the coml. season	72,137	65,483	59,838	76,874	56,766
Stocks at the end of the month	18,622	25,144	30,476	10,203	3,488

⁽¹⁾ Farmers are required to deliver all wheat, except that retained for home consumption or seed, to collective depots (*ammassi collettivi*). — ⁽²⁾ Including a small quantity carried over from the preceding crop.

Cotton stocks on hand in the United States.

LOCATION	Last day of month				
	April 1939	March 1939	February 1939	April 1938	April 1937
	thousand cents				
In consuming establishments	6,414	7,031	7,740	8,455	9,702
In public storage and at compresses . . .	64,446	67,034	69,912	52,107	20,582
TOTAL . . .	70,860	74,065	77,652	60,562	30,284

Cotton stocks at Bombay, Alexandria and Port Sudan.

LOCATION	Thursday nearest 1st of month ⁽¹⁾				
	May 1939	April 1939	March 1939	May 1938	May 1937
	thousand cents				
Bombay ⁽²⁾	4,479	4,426	3,901	4,615	4,756
Alexandria ⁽²⁾	2,550	2,956	2,980	2,663	1,670
Port Sudan . . . . .	...	638	247	806	396

⁽¹⁾ For Port Sudan the data refer to the last day of the preceding month. — ⁽²⁾ Stocks held by exporters, dealers and millers. — ⁽³⁾ Quantities consumed in Alexandria, or returned to the interior of the country, are not included.

AUTHORITIES: East Indian Cotton Assn. and Commission de la Bourse de Mind-el-Bassal.

Cotton stocks in Europe.

LOCATION, DESCRIPTION	Thursday or Friday nearest 1st of month ⁽¹⁾				
	May 1939	April 1939	March 1939	May 1938	May 1937
	thousand centals				
<i>Great Britain:</i>					
American	1,757	1,899	2,123	4,160	2,050
Argentine	44	56	59	43	164
Brazilian	364	476	533	350	488
Peruvian	699	748	780	380	193
East Indian	252	181	187	198	398
Egyptian	586	566	517	458	565
Sudanese	354	384	399	272	472
W. Indian, W. and E. African, and other.	266	235	239	258	165
<i>Total . . .</i>	<i>4,322</i>	<i>4,545</i>	<i>4,837</i>	<i>6,119</i>	<i>4,495</i>
<i>Bremen:</i>					
American	608	679	714	960	699
South American	97	139	144	54	74
Other	150	167	152	168	169
<i>Total . . .</i>	<i>855</i>	<i>985</i>	<i>1,010</i>	<i>1,182</i>	<i>942</i>
<i>Le Havre:</i>					
American	600	754	925	1,350	1,039
South American	71	103	135	29	34
French Colonial	85	101	123	25	37
Other	24	29	37	36	54
<i>Total . . .</i>	<i>780</i>	<i>987</i>	<i>1,220</i>	<i>1,440</i>	<i>1,164</i>
<i>Total Continent ⁽²⁾:</i>					
American	1,435	1,663	1,903	2,585	1,822
South American	167	244	279	87	124
East Indian	102	101	91	78	94
Egyptian	108	126	97	87	104
W. Indian, W. and E. African, and other.	248	248	244	162	185
<i>Total . . .</i>	<i>2,060</i>	<i>2,382</i>	<i>2,614</i>	<i>2,999</i>	<i>2,329</i>
<i>Grand total . . .</i>	<i>6,382</i>	<i>6,927</i>	<i>7,451</i>	<i>9,118</i>	<i>6,824</i>

⁽¹⁾ Thursday for Continent, Friday for Great Britain. — ⁽²⁾ Including Bremen and Le Havre.

AUTHORITIES: Liverpool Cotton Assn. and (for Le Havre) *Bulletin de Correspondance de la Bourse du Havre*.

PRICES

PRICES BY PRODUCTS

All quotations are spot, on Fridays, unless otherwise stated. The monthly averages are based on the Friday quotations, and the yearly averages on the monthly.

DESCRIPTION	May	May	April	April	AVERAGE				
	12	5	28	21	April	May	May	Commercial	
	1939	1939	1939	1939	1939	1938	1937	1937-38	1936-37
Wheat (7)									
Budapest: Tisza wheat, 78 kg. p. hl. (pengé p. quintal)	20.40	20.62	20.75	20.80	20.91	23.66	20.27	21.44	19.04
Braila: Home-grown, good qual. (lei p. ql.)	415	n. q.	425	415	415	548	* 539	520	* 486
Winnipeg: No. 1 Manitoba (cents p. 60 lb.)	65 ³ / ₈	65 ³ / ₈	63 ³ / ₈	60 ³ / ₈	60 ³ / ₈	115 ³ / ₈	130 ³ / ₈	131 ¹ / ₈	122 ³ / ₈
Chicago: No. 2 Hard Winter (cents p. 60 lb.)	79 ³ / ₈	n. 79 ¹ / ₂	n. 76 ³ / ₈	n. 72 ³ / ₈	n. 73 ¹ / ₂	n. 83 ³ / ₈	130 ³ / ₈	96 ³ / ₈	130
Minneapolis (cents p. 60 lb.):									
No. 1 Northern	81	79 ³ / ₈	77 ¹ / ₈	74 ¹ / ₂	75	89 ¹ / ₈	137	104 ³ / ₈	141
No. 2 Amber Durum	75 ¹ / ₈	75 ¹ / ₈	74 ³ / ₈	70 ¹ / ₂	70 ³ / ₈	79 ³ / ₈	122 ⁷ / ₈	93 ³ / ₈	138 ¹ / ₈
New York: No. 2 Hard Winter (cents p. 60 lb.)	93 ³ / ₈	89 ³ / ₈	87 ³ / ₈	83 ³ / ₈	84 ³ / ₈	101 ³ / ₈	146 ¹ / ₈	112 ⁷ / ₈	142 ³ / ₈
Buenos Aires (2): No. 2 Hard, 80 kg. p. hl. (paper pesos p. quintal)	7.00	7.00	7.00	7.00	7.00	10.40	13.74	12.20	12.28
Karachi: White Karachi, 2% barley, 1 ¹ / ₂ % impurities (rupees p. 556 lb.)	26-1-0	26-8-0	24-14-0	23-9-0	23-9-3	22-10-0	32-8-9	26-15-9	31-4-11
Hamburg (c. i. f.; Rm. p. quintal):									
No. 1 Manitoba	7.98	8.08	⁵) 7.41	⁵) 7.56	7.46	12.57	14.00	14.50	13.32
Barusso, 80 kg. p. hl.	5.81	5.84	⁵) 5.66	⁵) 5.64	5.63	10.32	13.61	11.45	11.90
Antwerpen (francs p. quintal):									
Home-grown	130.00	130.00	131.00	131.00	130.25	133.75	150.25	135.05	135.40
No. 1 Manitoba (Atlantic; c. i. f., arrived)	93.50	93.00	92.00	91.50	90.85	159.35	163.25	171.20	154.50
Bahia (c. i. f., arrived) (4)	77.00	75.00	73.50	73.00	72.25	121.60	155.75	142.10	141.05
London, Mark Lane: English (sh. p. 504 lb.; on the farm)	23/6	22/6	22/-	21/-	* 20/10	36/4 ¹ / ₂	42/7 ¹ / ₂	37/7 ¹ / ₂	40/1 ¹ / ₄
Liverpool and London (c. i. f., parcels, shipping current month; sh. p. 480 lb.):									
French (on sample)	20/6	20/6	⁵) 20/-	⁵) 19/9	* 19/8	n. q.	n. q.	n. q.	n. q.
Danubian (on sample)	⁵) 20/4 ¹ / ₂	⁵) 20/3	⁵) 19/4 ¹ / ₂	⁵) n. 19/3	19/1	n. q.	n. q.	* 36/2 ¹ / ₂	* 38/1 ¹ / ₄
Soviet (on sample)	n. q.	n. q.	n. q.	n. q.	n. q.	n. q.	n. q.	* 38/5 ¹ / ₂	n. q.
No. 1 Northern Manitoba (Atlantic) . .	⁷) 28/6	⁷) 28/7 ¹ / ₂	⁵) 27/6	⁵) 27/1 ¹ / ₂	27/7 ³ / ₈	42/10 ³ / ₈	48/7 ¹ / ₂	50/5 ¹ / ₂	* 46/0 ¹ / ₄
No. 1 Northern Manitoba (Pacific) . .	28/1 ¹ / ₂	28/2 ¹ / ₄	⁵) 26/9	⁵) 26/4 ¹ / ₂	26/1 ¹ / ₂	n. 43/11 ¹ / ₄	49/-	* 50/8	* 45/9 ¹ / ₄
No. 3 Northern Manitoba (Pacific) . .	25/-	25/-	⁵) 23/7 ¹ / ₂	⁵) 23/1 ¹ / ₂	22/10	38/3	46/4	* 41/10 ¹ / ₂	* 43/6
No. 2 Hard Winter (Gulf)	n. q.	n. q.	n. q.	n. q.	n. q.	⁵) 35/4 ¹ / ₂	n. q.	39/0 ³ / ₈	n. q.
Soft White Pacific	n. q.	n. q.	n. q.	n. q.	n. q.	30/2	n. q.	* 33/10 ¹ / ₄	n. q.
Rosafé, 63 ¹ / ₂ lb. p. bushel (7)	21/4 ¹ / ₂	n. 22/-	20/7 ¹ / ₂	20/7 ¹ / ₂	20/4 ³ / ₈	⁵) 35/7 ³ / ₈	45/1	39/2 ¹ / ₂	* 39/3 ¹ / ₄
Choice White Karachi	n. q.	n. q.	n. q.	n. q.	n. q.	31/3	45/1	* 36/5 ³ / ₈	42/5 ³ / ₈
West Australian (cargoes)	23/9	24/-	23/4 ¹ / ₂	23/-	22/8 ¹ / ₂	32/7 ³ / ₈	46/6	37/7 ¹ / ₂	43/4 ¹ / ₈
New South Wales (cargoes)	23/9	24/-	23/6	23/-	22/9	32/7	46/6	37/6	43/0 ¹ / ₄

* Indicates that the product was not quoted during part of the period under review. — n. q. = not quoted. — n. = nominal. — (a) Thursday prices.

(7) For fixed prices of wheat see Crop Report July 1938, p. 681 (for Berlin and Italy) and Sept. 1938, p. 861 (for France). — (2) Before Aug. 1937, "Barusso". — (4) As from January 1939: 64 lb. — (4) August-July. — (5) Shipping May. — (6) Bulgarian wheat. — (7) Shipping June. — (8) Dark Hard Winter, on sample. — (9) Barusso.

DESCRIPTION					AVERAGE			Commercial Season ¹⁾	
	May	May	April	April	April	May	May	1937-38	1938-37
	1939	1939	1939	1939	1939	1938	1937		
Rye (¹).									
Hamburg: Plata, 72-73 kg. p. hl. (c.i.f.; Rm. p. quintal).	5.49	5.61	²⁾ 5.37	²⁾ 5.26	5.21	n. q.	13.22	* 11.08	10.30
Budapest: Pest rye (pengö p. quintal).	14.30	14.67	14.50	14.72	14.82	18.97	20.60	18.37	17.17
Warszawa: Good quality (zloty p. quintal).	15.62	15.62	15.62	15.25	15.34	21.99	24.74	22.52	21.58
Winnipeg: No. 2 rye (cents p. 56 lb.)	44 ¹ / ₂	41 ¹ / ₂	41 ¹ / ₂	39 ³ / ₄	40	57 ⁷ / ₈	114 ¹ / ₂	72 ¹ / ₂	98 ³ / ₄
Minneapolis: No. 2 rye (cents p. 56 lb.)	48	45 ¹ / ₄	44 ³ / ₈	42 ¹ / ₂	43 ¹ / ₂	57 ⁷ / ₈	109 ¹ / ₂	67 ¹ / ₂	99 ⁷ / ₈
Antwerpen (francs p. quintal):	n. q.	n. q.	n. q.	n. q.	n. q.	123.00	* 134.00	124.85	n. q.
Home-grown									
Soviet (c.i.f., arrived)	55.00	57.00	59.00	59.00	61.25	98.85	141.75	112.50	114.90
Plata (c.i.f., arrived)	64.00	70.00	74.00	76.00	77.60	115.50	148.75	124.55	122.85
Groningen (a): Home-grown (fl. p. quintal)	8.20	8.20	8.17	8.17	* 8.11	6.97	8.20	* 7.12	* 8.12
Barley (²).									
Warszawa (zloty per quintal):									
Malting, good quality	n. q.	n. 20.00	20.00	20.00	19.87	n. q.	n. q.	* 22.41	* 25.12
Barley for other purposes, 1st quality	18.62	18.87	19.12	19.12	18.99	18.99	23.37	19.76	22.71
Brala: Average quality (lei p. quintal).	365	360	360	360	360	392	355	365	* 321
Winnipeg: No. 4 Western (cents p. 48 lb.)	39 ¹ / ₂	38 ³ / ₈	38 ³ / ₈	36 ³ / ₄	36 ¹ / ₂	54 ¹ / ₂	66 ¹ / ₂	56 ¹ / ₂	66 ¹ / ₂
Chicago: Feeding (on sample; cents p. 48 lb.)	39	40	40	40	40	48	76 ¹ / ₂	51 ¹ / ₂	74 ¹ / ₂
Minneapolis: No. 2 Feeding (cents p. 48 lb.)	42 ¹ / ₂	42	42	42	42	50 ¹ / ₂	69 ¹ / ₂	53 ¹ / ₂	77 ¹ / ₂
Antwerpen (c.i.f., arrived; frs. per ql):									
Danubian	75.00	75.50	77.00	76.00	76.00	105.00	113.10	106.10	107.75
No. 2 Federal (²)	72.00	73.00	74.00	72.50	72.75	97.85	n. q.	100.80	n. q.
London, Mark Lane: English malting, good quality (sh. p. 448 lb., on farm)	35/-	35/-	35/-	35/-	* 35/-	47/6	40/10 ¹ / ₂	* 53/-	* 41/2
Liverpool and London (c.i.f., parcels; shipping current month; sh. p. 400 lb.):									
Danubian, 3 % impurities	n. q.	n. q.	n. q.	n. q.	n. q.	n. q.	n. q.	n. q.	* 23/5
Soviet (Azov-Black Sea)	n. q.	n. q.	n. q.	n. q.	n. q.	n. q.	n. q.	* 24/-	n. q.
No. 3 Canadian Western (Atlantic)	²⁾ 20/4 ¹ / ₂	20/2 ¹ / ₄	²⁾ 19/8 ¹ / ₂	19/4 ¹ / ₂	19/1 ³ / ₄	24/11 ¹ / ₂	29/10	* 25/11	* 27/3
No. 3 Federal (Atlantic)	n. q.	n. q.	n. q.	n. q.	n. q.	21/9 ¹ / ₂	n. q.	* 22/3	n. q.
No. 1 Californian brewing (sh. p. 448 lb.)	²⁾ 29/6	²⁾ 31/-	²⁾ 30/-	²⁾ 30/-	30/-	32/11 ¹ / ₂	* 41/4	34/11 ¹ / ₂	* 40/6
Plata, 64-65 kg. p. hl. (²)	²⁾ 18/7 ¹ / ₂	19/4 ¹ / ₂	²⁾ 19/-	19/-	18/6 ¹ / ₄	n. q.	28/6	* 26/4 ¹ / ₂	25/0 ³ / ₄
Iraqian	18/-	18/5 ¹ / ₄	²⁾ 17/9	18/-	17/6 ¹ / ₄	* 23/-	25/11	24/5 ¹ / ₂	23/11
No. 1 Australian Chevalier (sh. p. 448 lb.)	26/-	26/-	²⁾ 26/-	²⁾ 25/6	25/7 ¹ / ₂	34/3	n. q.	* 37/3	* 39/4
Groningen (a): Home-grown, winter (fl. p. q.)	8.05	7.95	7.95	8.15	* 8.05	6.76	7.96	6.91	7.68
Oats (¹).									
Winnipeg: No. 2 White (cents per 34 lb.)	30 ⁵ / ₈	29 ⁷ / ₈	28 ⁷ / ₈	28 ² / ₄	28 ⁵ / ₈	49 ³ / ₄	56 ² / ₈	50 ⁵ / ₈	52 ⁷ / ₈
Chicago: No. 2 White (cents per 32 lb.)	36 ¹ / ₈	35	33 ³ / ₄	35	33 ¹ / ₄	30	54 ¹ / ₈	32 ¹ / ₈	49 ³ / ₄
Buenos Aires (b): No. 2 White, 49 kg. p. hl. (paper pesos p. quintal)	4.40	4.45	4.45	4.50	4.46	6.22	6.79	6.32	6.25
Paris: Home-grown (delivery regional depots; frs. p. quintal).	91.50	97.00	98.85	97.50	98.35	137.20	122.30	128.75	115.80
London, Mark Lane: English white (sh. p. 336 lb., on farm)	20/-	19/6	19/-	19/-	* 18/10	26/-	26/6	26/6 ¹ / ₄	23/9 ¹ / ₄
Liverpool and London (c.i.f., parcels; shipping current month; sh. p. 320 lb.):									
No. 1 Canadian feed (Atlantic)	²⁾ 16/7 ¹ / ₂	²⁾ 16/-	²⁾ 15/7 ¹ / ₂	²⁾ 15/7 ¹ / ₂	²⁾ 15/4 ¹ / ₂	22/10 ¹ / ₂	26/7	* 24/-	* 24/-
No. 2 Canadian Western (Atlantic)	²⁾ 17/7 ¹ / ₂	²⁾ 16/10 ¹ / ₂	²⁾ 16/6	²⁾ 16/6	²⁾ 16/3 ¹ / ₄	n. q.	n. q.	n. q.	23/4 ¹ / ₂
Plata, f. a. q.	11/9	12/3	²⁾ 11/9	11/10 ¹ / ₂	11/7 ¹ / ₂	15/1 ¹ / ₂	²⁾ 17/11 ¹ / ₄	15/11 ¹ / ₄	16/3 ¹ / ₄
Milano (c) (lire p. quintal):									
Home-grown	99.50	99.50	99.50	97.50	97.90	102.50	107.50	100.05	99.60
Foreign	99.50	97.50	97.50	97.50	97.50	98.75	109.50	97.15	100.45

* Indicates that the product was not quoted during part of the period under review. — n. q. = not quoted. — n. = nominal. — (a) Prices on preceding Tuesday. — (b) Thursday prices. — (c) Saturday prices.

(¹) For the fixed prices of rye, feeding barley and oats in Berlin see Crop Report July 1938, p. 681; for those of malting barley in Praha see Crop Report August 1938, p. 781. — (²) As from Sept. 23, 1938: No. 3 Federal. — (³) Also indicated as „fair average quality” (f.a.q.). — (⁴) August-July. — (⁵) Shipping May. — (⁶) Shipping June. — (⁷) New crop, shipping July-August. — (⁸) Shipping May-June. — (⁹) Shipping May-June, Pacific coast. — (¹⁰) Shipping Pacific coast.

DESCRIPTION	May	May	April	April	Average			
	12	5	28	21	April	May	May	Commercial
	1939	1939	1939	1939	1939	1938	1937	Season (*)
Maize.								
Brazil: Average quality (el p. quintal) . . .	412	412	410	390	396	340	290	362 * 313
Chicago: No. 3 Yellow (cents p. 56 lb.) . .	51 1/2	51	49 1/2	51	49 1/4	58	135 7/8	51 1/2 83
Buenos Aires (a): Yellow Plata (paper pesos p. quintal) . . .	6.05	6.22	6.20	6.50	6.35	8.16	6.63	6.89 7.79
Antwerpen (c. i. f., arrived; francs p. qt.) .	83.00	85.00	87.00	87.00	84.85 *	100.85	n. q.	87.90 n. q.
Bessarabian	85.00	87.00	89.00	90.00	85.10 *	111.00	92.00	90.20 101.00
Yellow Plata	96.00	97.50	101.00	102.00	101.25 *	129.50	101.00	118.05 109.05
Cinquantino (Argentine "Cuarentino") . .	128.00	130.00	130.00	128.00	127.75	128.75	91.75	121.65 109.60
Marseille (c. i. f., arrived; frs. p. 100 kg.) .	110.00	114.50	116.00	115.50	116.10	...	...	...
Yellow indochinese	n. q.	n. q.	n. q.	n. q.	n. q.	28/2 1/4	26/6	24/7 * 27/5
No. 1 Madagascar	n. q.	n. q.	n. q.	n. q.	n. q.	n. q.	n. q.	24/2 * 24/2
Liverpool and London (c. i. f., parcels; shipping current month; sh. p. 480 lb.) . .	10/25/-	10/25/6	11/24/-	11/24/-	23/8	26/3 1/4	n. q.	24/10 3/4 * 27/2
Danubian	22/9	23/6	23/10 1/2	23/10 1/2	23/3 1/4	28/8 1/4	26/4	25/4 1/4 28/4
Yellow Soviet	22/10 1/2	n. q.	n. q.	n. q.	23/9	n. q.	27/9	n. q. * 27/10
No. 2 Yellow American (Gulf)	90.00	90.00	90.00	90.00	90.00	87.50	82.00	89.70 83.00
Yellow Plata								
No. 2 White flat African								
Milano (b): Yellow, home-grown (lire p. quintal) (c)								
Rice (milled) (c).								
Rangoon (delivery current month; rupees p. 7500 lb.)								1938 1937
No. 2 Europe (Burma)	253-0	258-0	255-0	243-0	243-4	259-6	255-6	255-12 263-4
Kanoungeot, small mills specials	235-0	238-0	234-0	228-0	223-2	231-10	227-14	219-12 235-13
Big mills specials	230-0	233-0	230-0	224-0	219-8	215-0	221-4	207-0 229-6
Saigon (Indochinese piastres p. quintal):								
No. 1 Round white, 25 % broken	10.12	9.78	9.84	9.49	9.43	11.28	6.33	10.66 7.85
No. 2 Japan, 40 % broken	9.60	9.51	9.35	9.00	8.96	10.71	6.09	10.11 7.58
Marseille: No. 1 Saigon (c. i. f., arrived; frs. p. quintal)	130.00	128.00	127.00	122.00	121.75	141.85	86.60	138.65 104.90
London (a) (c. i. f., shipping current month; shillings p. cwt.):								
Italian oiled	17/9	17/9	17/9	17/9	17/9	18/6	18/-	17/10 * 17/-
American Blue Rose, extra fancy	15/10 1/2	16/1 1/2	16/-	16/-	15/10 1/2	14/4 1/2	20/4 1/2	15/0 1/2 18/1 1/2
No. 2 Rangoon or Bassein (Burma) (c) . .	8/1 1/2	8/4 1/2	8/1 1/2	7/10 1/2	7/11 1/2	8/6	8/11	8/3 3/4 9/2 1/2
No. 1 Saigon	8/-	8/-	7/7 1/2	7/4 1/2	7/5	8/11 1/2	8/11 1/2	8/5 1/2 9/2 1/2
Siam Super (c)	8/7 1/2	8/4 1/2	8/3	8/2 1/2	8/2 1/2	9/1 1/2	10/6 1/2	9/2 1/2 10/8
Tokyo: "Tsumai", brown Japanese, average quality (yen p. koku) . . . . .	...	...	...	...	...	34.10	32.72	34.26 32.37
Linseed.								
Buenos Aires (a): Current quality, 4 % impurities (paper pesos p. quintal) . .	14.45	14.30	14.25	14.20	14.29	14.50	15.76	14.31 15.47
Bombay: Bold (rupees p. cwt.)	7-6-6	7-2-6	7-0-3	6-14-6	6-11-10	7-1-6	8-2-8	7-4-10 7-14-10
Antwerpen: Plata (c. i. f., arrived; frs. p. quintal)	157.50	156.00	153.00	152.00	153.00	169.85	185.50	166.20 183.10
London (c. i. f., shipping current month; £ p. long ton):								
Plata (delivery Hull)	11-11-3	11-11-3	11-6-3	11-3-9	11-4-8	11-14-1	13-4-1	11-10-11 12-16-5
Bombay bold	13-10-0	13-3-9	12-17-6	12-13-9	12-15-4	12-18-9	15-14-4	13-3-9 15-5-7
Duluth: No. 1 Northern (futures; cents p. 56 lb.) (c)	166 1/2	163	n. 170	n. 173 1/2	173 1/2	180 1/2	207 1/2	183 7/8 204 1/2
Minneapolis: No. 1 Northern (cts. p. 56 lb.) .	179	n. 174 1/2	181 1/2	n. 185 1/2	n. 184 1/2	184	207 1/2	190 209 1/2
Cottonseed.								
Alexandria (a) (piastres p. ardeb):								1937-38 1936-37
Upper Egyptian	58.4	52.8	48.9	48.3	49.0	50.6	85.4	55.3 77.8
Sakellaris	55.8	49.6	45.3	44.6	45.3	46.1	80.7	50.7 72.6
London: (c. i. f., £ p. long ton):								
Egyptian black (shipping current month)	6-3-9	5-16-3	n. 5-13-9	5-10-0	5-11-3	5-9-1	8-14-8	6-1-6 8-3-3
Sakellaris (arrived) (c)	n. 5-17-6	n. 5-10-0	n. 5-6-3	n. 5-5-0	n. 5-5-7	n. 5-5-0	8-8-9	5-17-6 * 7-16-8

* Indicates that the product was not quoted during part of the period under review. — n. q. = not quoted. — n. = nominal.
— (a) Thursday prices. — (b) Saturday prices.

(c) Maximum prices for best quality, except from Feb. to June 1938. Always: free at producer's station. — (d) For the maximum prices of rice in Italy, see Crop Report Oct. 1938, p. 979. — (e) "London Standard". — (f) Quotations refer to May futures from January to May, to July futures in June and July, to September futures in August and September and to December futures during the remaining months. — (g) From June 8, 1938 indicated as Mela-Sakellaris. — (h) Maize: May-April; cottonseed: Sept.-Aug. — (i) New crop. — (j) Shipping May-June. — (k) Shipping April-May. — (l) Shipping Atlantic coast. — (m) Shipping May.

DESCRIPTION	May	May	April	April	Average			Commercial	
	12	5	28	21	April	May	May	Season (1)	
	1939	1939	1939	1939	1939	1938	1937	1937-38	1936-37
Cotton (1).									
New Orleans: Middling (cents p. lb.) . .	9.20	9.08	8.97	8.62	8.61	8.66	13.12	8.87	12.78
New York: Middling (cents p. lb.) . .	n. 9.44	n. 9.31	n. 9.20	n. 8.87	n. 8.87	8.50	13.33	8.75	12.91
Bombay (rupees p. 784 lb.):									
Broach, f.g. (futures) (2)	161-8	160-2	152-14	153-6	151-15	154-7	232-6	166-11	224-14
Broach, f.g. (spot)	164-0	164-0	156-0	158-0	155-12	155-12	232-12	162-9	228-4
Oomra, fine (spot)	156-0	153-0	144-0	145-0	143-8	140-8	225-0	148-13	214-14
Alexandria (a) (talaris p. kantar):									
Sakellaridis, f.g.f.	10.95	10.90	11.20	11.35	11.25	12.36	19.44	14.19	19.22
Giza 7, f.g.f.	11.07	10.97	10.97	10.97	10.98	11.97	20.20	12.81	17.22
Ashmuni, f.g.f.	9.17	9.22	9.17	9.27	9.10	9.76	18.52	10.62	15.19
Bremen: Middling (U.S. cents p. lb.) . .	11.00	10.81	10.72	10.58	10.40	10.40	15.33	10.63	15.01
M.g. Broach, f.g. (pence p. lb.) . . .	n. 4.60	n. 4.50	n. 4.40	n. 4.40	n. 4.39	n. 4.40	n. 6.16	n. 4.68	n. 5.78
Le Havre: Middling (futures; frs p. 50 kg.)	450.00	419.00	394.00	397.50	392.85	424.35	396.10	392.75	366.65
Liverpool (pence per lb.):									
Middling, super good	5.98	5.93	5.70	5.69	5.66	5.45	8.15	5.79	7.89
Middling	5.33	5.28	5.00	4.99	4.96	4.65	7.30	4.97	7.11
São Paulo, g.f.	5.28	5.23	5.00	4.99	4.96	4.85	7.45	5.16	7.21
Broach, good staple, f.g.	n. 4.04	n. 3.99	n. 3.86	n. 3.83	n. 3.78	n. 3.79	n. 5.99	n. 4.04	n. 5.71
C.P. Oomra, superfine	n. 4.35	n. 4.35	n. 4.24	n. 4.23	n. 4.17	n. 4.01	n. 6.04	n. 4.29	n. 5.85
Egyptian Sakellaridis, f.g.f.	6.29	6.39	6.38	6.60	6.53	7.55	11.30	8.22	10.79
Giza 7, f.g.f.	6.29	6.39	6.38	6.60	6.53	6.90	10.74	7.42	9.72
Upper Egyptian, f.g.f.	5.54	5.56	5.52	5.65	5.59	5.57	9.66	6.31	8.46
Bacon.									
London, Provision Exchange (b) (shillings p. cwt.):								1938	1937
English, No. 1, lean sizable	88/-	88/-	88/-	93/-	92/9	99/6	91/-	99/1	94/5
Danish, No. 1, sizable	90/-	90/-	90/-	94/-	94/-	100/6	94/3	99/3	94/1
Irish, No. 1, sizable	83/-	83/-	85/6	85/6	87/7	95/4	91/10	95/11	92/9
Lithuanian, No. 1, sizable	80/-	80/-	80/-	83/-	82/9	92/9	86/-	91/8	87/4
Dutch, No. 1, sizable	83/-	83/-	83/-	87/-	86/6	95/-	91/3	96/1	91/4
Polish, No. 1, sizable	80/-	80/-	80/-	83/-	82/9	92/9	86/-	92/2	87/4
Swedish, No. 1, sizable	83/-	83/-	83/-	87/-	86/6	95/-	91/3	96/1	91/2
Canadian, No. 1, sizable	80/-	80/-	80/-	83/-	82/9	92/9	84/6	91/10	86/3
Butter (3).									
Köbenhavn (a): Danish, for export (crs. p. quint.)	222.00	222.00	222.00	222.00	225.50	229.00	187.25	230.49	224.45
Leeuwarden, Commission for butter quotations (a): Dutch, for export (cents p. kg.) (4)	69	73	75	75	74 3/4	88 3/4	70 3/4	80 1/4	77 1/8
Antwerpen, auction: Belgian (frs. p. kg.)	19.00	18.15	19.40	20.05	19.60	21.15	17.90	23.30	22.65
Liverpool: Irish creamery (sh. p. cwt.) . .	n. q.	n. q.	n. q.	n. q.	n. q.	131/7	111/-	124/6	121/3
London (c): English blended (sh. p. cwt.) . .	135/4	140/-	140/-	140/-	140/-	140/11	123/8	132/7	131/7
London, Provision Exchange (b) (sh. p. cwt.):									
Danish creamery, unsalted	126/6	126/6	126/6	126/6	128/-	129/6	110/3	130/-	127/1
Lithuanian, unsalted	105/-	n. q.	n. q.	n. q.	113/9	127/6	106/6	115/8	114/11
Dutch creamery, unsalted	99/-	105/6	108/6	109/6	108/6	123/-	102/-	113/10	109/7
Argentine, finest, unsalted	n. q.	n. q.	n. q.	107/-	n. q.	n. q.	n. q.	103/-	94/4
Siberian, salted	n. q.	n. q.	n. q.	n. q.	n. q.	n. q.	n. q.	n. q.	100/2
Australian, finest, salted	106/6	110/6	112/-	112/6	112/6	126/4	105/7	114/9	109/8
New Zealand, finest, salted	108/-	113/6	114/-	114/-	114/-	129/-	106/9	117/1	110/5
Montreal (d): First grade creamery (cents p. lb.)	20 3/4	20 3/8	21	21 1/2	21 5/8	27	24 3/8	27	27 1/8
New York (d): 92 score, creamery (cents p. lb.)	23 1/2	22 3/4	22 3/4	23 3/4	23 3/4	26 1/4	32 1/4	28	34 1/4

* Indicates that the product was not quoted during part of the period under review. — n. q. = not quoted. — n. = nominal. — (a) Thursday prices. — (b) Average prices Thursdays, and Friday mornings. — (c) Average prices for weeks commencing on Thursdays. — (d) Wednesday prices.

(1) Quotations refer to April-May futures during the period September-May following, and to July-August futures during the other months. — (2) Quotations refer to futures for the current month. — (3) For fixed prices of butter in Germany see Crop Report Nov. 1938 p. 1080. — (4) For home prices these quotations must be increased by a consumption tax which, up to April 7, 1939 amounted to 60 cents per kg. and to 55 cents as from that date. — (5) Cotton: August-July. — (6) July-August futures. — (7) May futures. — (8) Average March: * 472.75 (March futures only). — (9) Fair staple.

DESCRIPTION	May	May	April	April	AVERAGE			Commercial Season	
	10	5	25	21	April	May	May		
	1939	1939	1939	1939	1939	1938	1937	1938	1937
Cheese (%).									
Milano (lire p. quintal):									
Parmigiano-Reggiano, 1st quality, production 1939 (%)	n. q.	n. q.	n. q.	n. q.	n. q.	*1,280.00	n. q.	*1,229.00	* 868.80
Parmigiano-Reggiano, 1st quality, production 1937 (%)	1,210.00	1,210.00	1,210.00	1,203.00	1,202.50	1,180.00	942.50	1,130.85	895.15
Gorgonzola green, mature, choice	750.00	750.00	750.00	750.00	745.00	800.00	700.00	773.10	714.60
Roma: Roman Pecorino, choice (lire p. quintal)	1,100.00	1,100.00	1,100.00	1,100.00	1,100.00	1,047.50	937.50	1,058.30	954.05
Alkmaar: Edam 40+, National Mark, factory cheese, small (florins p. 50 kg.)	17.75	17.75	16.75	16.25	16.56	20.00	17.31	21.33	19.73
Gouda: Gouda 45+, National Mark, farm made, 1st quality (florins p. 50 kg.)	22.00	21.00	21.00	21.50	21.12	24.56	20.95	25.72	23.21
London, Provision Exchange (a) (shillings p. cwt.):									
English Cheddar, finest farmers	95/-	94/-	94/-	94/-	94/-	n. q.	n. q.	* 92/1	* 90/3
English Cheshire, Nat. Mark Selected	84/-	87/6	88/8	87/6	87/6	87/6	79/-	96/9	97/10
Italian Gorgonzola	100/4	101/6	101/6	106/2	104/1	111/1	100/4	103/2	103/6
Dutch Edam, 40+ (%)	50/-	49/6	49/6	49/9	49/10	56/2	47/8	59/3	57/1
Canadian, finest white (%)	72/6	72/6	72/6	72/6	72/3	77/7	77/3	75/3	73/7
New Zealand, finest white	54/-	60/-	60/-	60/-	60/-	69/11	72/4	69/6	66/6
Eggs.									
Antwerpen, auction; Belgian, average quality (frs. p. 100)	40.00	40.00	41.00	44.00	44.00	46.50	32.25	58.80	52.05
Denmark (c): Danish for export (crs. per quintal)	100.00	88.00	88.00	92.00	83.60	98.40	73.60	116.70	109.13
Apeldoorn (d): Dutch, average quality 57/58 gr. each (fl. p. 100)	3.30	3.35	3.25	3.35	3.37	3.15	2.59	3.85	3.77
Barneveld (e): Dutch, average quality 57/58 gr. each (fl. p. 100)	3.35	3.35	3.30	3.45	3.41	3.19	2.57	3.90	3.77
Warszawa (b): Polish, average quality, 50 gr. each (zloty p. 100)	5.75	5.75	5.85	6.40	6.44	6.42	5.26	8.31	8.11
Liverpool: Irish, extra selected (sh. p. 120)	*) 10/9	*) 10/6	*) 10/3	*) 10/9	*) 10/2 1/4	10/7	10/5 1/2	13/7 1/2	13/1
London, Egg Exchange (d) (shillings p. 120):									
English, National Mark, specials	12/9	12/3	12/3	12/3	12/-	13/1 1/2	11/1 1/2	17/9 1/2	17/3
Belgian, 15 1/2 lb. p. 120	n. q.	n. q.	n. q.	n. q.	n. q.	* 9/9 1/2	* 7/6 1/2	* 11/8	* 10/4
Danish, 17 lb. p. 120	9/10 1/2	10/-	9/4 1/2	9/7 1/2	9/9	10/7 1/2	8/8	12/7 1/2	12/2 1/2
Northern Irish, specials (%)	11/4 1/2	11/6	11/1 1/2	11/9	11/5 1/4	12/5 1/4	11/0 1/2	16/8 3/4	16/7
Lithuanian, 17 lb. p. 120	8/7 1/2	8/9	*) 9/-	9/1 1/2	9/1 1/2	9/9 1/4	7/9	* 10/10	* 10/2
Dutch, all brown, 67/69 grams each	11/3	11/3	11/-	11/-	11/2 1/2	12/5 1/4	* 11/-	14/3 1/2	14/1
Polish, 53/54 grams each	6/11 1/4	7/0 1/2	7/-	7/9	* 7/2	* 8/0 1/4	* 6/5 1/4	* 8/4	* 7/9 1/2
Romanian, 53/54 grams each	6/11 1/4	7/0 1/2	6/10 1/2	7/7 1/2	7/4 1/4	* 8/-	n. q.	8/7 1/4	* 8/5 1/2
Chinese, "violet"	n. q.	n. q.	n. q.	n. q.	n. q.	n. q.	n. q.	n. q.	* 8/11 1/2
South African, 17 lb. p. 120	n. q.	n. q.	n. q.	n. q.	n. q.	n. q.	n. q.	* 13/11	* 13/8
Australian, 16 lb. p. 120	n. q.	n. q.	n. q.	n. q.	n. q.	n. q.	n. q.	* 12/10	* 11/8

* Indicates that the product was not quoted during part of the period under review. — n. q. = not quoted. — n. = nominal. — (a) Average prices Thursdays and Friday mornings. — (b) Average weekly prices. — (c) Average prices for weeks commencing on Thursdays. — (d) Prices on following Mondays. — (e) Thursday prices.

(1) For fixed prices of cheese in Germany see Crop Report August 1938, p. 782. — (2) Prices of 1936 cheese are compared with the yearly and monthly averages of cheese made in 1935 and 1934; prices of 1937 cheese with those of 1936 and 1935. The yearly averages refer to periods from Sept. to August. See Crop Report Jan. 1938, p. 92. — (3) Before Oct. 18, 1937, "Extra special" quality. — (4) "Special" quality. — (5) Eggs weighing 18 lb. per 120.

OCEAN FREIGHT RATES ⁽¹⁾

DESCRIPTION	WEEK ENDING ON				AVERAGE			Commercial season ⁽²⁾	
	March 13 1939	March 6 1939	April 29 1939	April 22 1939	April 1939	March 1938	March 1937	1937-38	1936-37
Shipments of wheat and maize.									
<i>Rates in shillings per quarter:</i>									
Port Churchill to picked ports United Kingdom	n. q.	n. q.	n. q.	n. q.	n. q.	n. q.	n. q.	* 3/11 1/2	* 2/10 1/2
Montreal to picked ports United Kingdom	2/9	2/9	n. q.	n. q.	n. q.	2/9 1/2	3/11 1/2	* 3/3 1/2	* 2/6 1/2
St. John to Liverpool ⁽³⁾	n. q.	n. q.	2/11	2/11	2/11	n. q.	n. q.	* 3/5	* 2/10 1/2
New York to Liverpool ⁽³⁾	2/11	2/11	2/11	2/11	2/11	3/-	n. q.	* 3/3	n. q.
American Northern Range to picked ports United Kingdom or N.W. Continent	2/9	2/9	2/9	2/9	2/9	n. q.	3/-	* 3/6	* 2/9
Mexican Gulf to picked ports United Kingdom or N.W. Continent ⁽⁴⁾	n. 3/3	n. 3/3	n. 3/3	n. 3/3	3/4 1/2	2/11	n. q.	* 4/0 1/2	n. q.
<i>Rates in shillings per long ton:</i>									
Ports of lower Danube to Antwerpen or Rotterdam	⁵⁾ 14/-	⁵⁾ 14/-	⁵⁾ 14/-	⁵⁾ 14/-	⁵⁾ 14/1	15/11	23/-	* 22/10	* 20/4
Russian Black Sea ports to Antwerpen or Rotterdam	n. q.	n. q.	n. q.	n. 10/3	* n. 10/3	n. q.	n. q.	17/1 1/2	* 16/6
North Pacific coast to picked ports United Kingdom	24/-	24/-	23/6	23/6	23/4	23/7	39/-	33/3	* 29/6
La Plata Down River to picked ports United Kingdom or N.W. Continent	20/-	20/-	19/1	19/-	19/-	24/-	n. 30/3	27/4	23/8
La Plata Up River to picked ports United Kingdom or N.W. Continent	21/2	21/3	20/3	20/-	20/-	25/-	30/8	28/6	24/10 1/2
South Australia to United Kingdom or N.W. Continent (wheat in bulk)	31/2	31/2	31/4	31/4	31/7	32/3	41/11	39/4	34/1
Shipments of rice.									
<i>Rates in shillings per long ton:</i>									
Saigon to picked French ports or Rotterdam	26/11	26/6	26/5	26/4	26/5	28/-	49/5	* 30/6	45/3
Burma to United Kingdom or N.W. Continent	26/6	n. 26/6	27/2	27/2	27/4	n. q.	42/7	* 31/8	* 39/6

* Indicates that the rate was not quoted during part of the period under review. — n. q. = not quoted. — n. = nominal.

⁽¹⁾ Average rates for entire cargoes, except where otherwise stated, relating to contracts made, during periods often extending back several months, to operate during the weeks specified. For more detailed explanations see the article with the same title on p. 392 of the Crop Report for April 1939. — ⁽²⁾ Shipments of wheat and maize: Aug.-July. — ⁽³⁾ Rates for parcels by liners. — ⁽⁴⁾ Before October 1937, rates for parcels by liners. — ⁽⁵⁾ Freight rates quoted at Braila, not comparable with the other rates.

AVERAGE MONTHLY PRICES IN GOLD FRANCS PER QUINTAL ⁽¹⁾

DESCRIPTION	April 1939	April 1938	April 1937	DESCRIPTION	April 1939	April 1938	April 1937
Wheat.				Cotton.			
Winnipeg: No. 1 Manitoba . .	6.50	15.53	15.52	New Orleans: Middling . .	58.10	66.47	93.94
Chicago: No. 2 Hard Winter .	5.27	10.18	15.66	Bombay (futures):			
Buenos-Aires: No. 2 Hard . .	6.69	11.57	13.93	M.g. Broach, f.g.	45.78	51.85	76.12
Karachi: White Karachi . .	8.49	9.17	12.90	Alexandria:			
Liverpool and London (c.i.f.):				Sakellaris, f.g.f.	73.62	88.84	148.53
No. 1 Manitoba (Pacific) . .	8.60	17.90	17.94	Meat (dead weight).			
No. 2 Hard Winter	n. q. 12.76	16.01	16.01	<i>Beef, home-grown:</i>			
Rosafé	6.72	12.94	15.97	Paris	80.59	105.94	129.08
W. Australian (cargoes) . .	7.48	11.94	16.26	London	97.96	108.29	100.78
Rye.				<i>Mutton, home-grown:</i>			
Warszawa: Home-grown. . .	8.92	11.84	14.37	Paris	160.70	162.26	214.04
Minneapolis: No. 2 rye . . .	5.20	7.32	13.51	London.	117.71	103.93	155.05
Barley.				<i>Pork, home-grown:</i>			
Winnipeg: No. 4 Western . .	5.10	7.58	9.95	Denmark	112.32	128.61	115.25
Minneapolis: No. 2 Feeding .	5.90	7.15	11.04	Rotterdam (live weight) .	76.45	93.52	79.60
Antwerpen: Danubian . . .	7.89	10.98	12.01	Paris (live weight)	73.14	81.23	85.78
Liverpool and London (c.i.f.):				London	114.83	123.14	112.41
No. 3 Canadian Western . .	7.57	10.25	12.61	Bacon.			
Plata	7.32	10.89	12.25	London:			
Oats.				English, No. 1, lean sizable	130.90	156.34	138.82
Winnipeg: No. 2 White . . .	5.65	10.02	11.49	Danish, No. 1, sizable . .	132.66	158.71	139.44
Chicago: No. 2 White . . .	7.01	6.70	11.57	Butter.			
Buenos Aires: No. 2 White . .	4.26	6.55	6.87	Köbenhavn: Danish	144.32	148.69	131.91
Liverpool and London (c.i.f.):				Leeuwarden: Dutch	121.58	147.51	116.05
Plata	5.75	8.06	9.38	London:			
Maize.				Danish	180.65	184.91	169.71
Chicago: No. 3 Yellow . . .	5.94	7.09	16.06	New Zealand, salted . . .	160.89	182.66	154.45
Buenos Aires: Yellow Plata.	6.07	8.92	6.55	Cheese.			
Liverpool and London (c.i.f.):				Alkmaar: Edam 40 + . . .	53.87	66.66	55.14
Yellow Plata	7.68	10.28	9.26	London:			
Rice.				English Cheddar	132.66	153.39	125.62
Rangoon: No. 2 Burma . . .	7.66	8.23	8.68	New Zealand	84.68	104.18	100.30
Saigon: No. 1 Round white.	7.64	9.43	8.77	Eggs (per 100).			
London (c.i.f.): No. 2 Burma	11.20	11.60	13.26	Denmark: Danish (per ql.)	53.50	49.68	46.34
				London:			
				English	7.17	7.45	6.73
				Danish	5.83	6.10	5.52
				Dutch	6.70	7.53	6.59

⁽¹⁾ Extracts from tables published in the January, April, July and October issues; for method of conversion into gold francs per quintal, see these issues; for detailed specification of qualities and conditions, see "Prices by products".

**INDEX-NUMBERS OF PRICES OF AGRICULTURAL PRODUCTS
AND OF COMMODITIES BOUGHT BY THE FARMER**

DESCRIPTION	April	March	Feb.	Jan.	Dec.	Nov.	April	April	YEAR	
	1939	1939	1939	1939	1938	1938	1938	1937	1937-38 (*)	1936-37 (*)
Germany										
(Statistisches Reichsamt; products sold by farmers)										
Average for corresponding months 1909-10/1913-14 = 100.										
Cereals	104	113	113	112	112	111	108	103	110	105
Edible potatoes	116	114	106	110	111	108	116	116	114	115
Plant products	107	114	112	112	112	111	110	107	111	107
Meat animals	97	97	97	95	95	94	96	95	95	94
Livestock products (butter and eggs) . .	113	107	107	109	108	106	113	111	109	108
Livestock and livestock products . .	102	100	100	100	99	97	101	100	99	99
Total agricultural products	104	103	103	103	103	102	104	102	102	101
Germany										
(Statistisches Reichsamt; wholesale products) 1913 = 100.										
									1938	1937
Foodstuffs of plant origin	118.4	118.0	116.9	116.1	115.2	114.7	116.6	114.5	115.9	115.0
Livestock	90.4	90.3	90.2	90.0	90.4	90.5	87.2	85.7	88.6	87.2
Livestock products	111.2	114.0	115.2	117.4	115.8	115.2	111.6	110.2	112.9	110.9
Feedingstuffs	109.1	108.9	108.8	108.5	108.2	107.3	107.7	107.3	107.2	106.0
Total agricultural products	107.3	107.8	107.6	107.8	107.2	106.8	105.7	103.9	105.9	104.6
Fertilizers	57.3	57.3	57.3	56.5	55.1	53.4	57.4	60.6	55.3	57.0
Agricultural dead stock	110.8	110.8	110.7	110.7	110.8	110.9	110.9	112.8	111.3	112.7
Consumption goods (*)	135.7	135.4	135.0	135.0	135.1	135.0	135.7	131.8	135.4	133.3
Wholesale products in general	106.4	106.6	106.5	106.5	106.3	106.1	105.6	105.8	105.7	105.9
England and Wales (2)										
(Ministry of Agriculture and Fisheries) Average 1927-1929 = 100.										
A: UNCORRECTED FOR SEASONAL VARIATION										
Cereals and farm crops	95	84	79	79	76	75	87	116	86 1/2	98 1/2
Livestock and livestock products . .	89	92	96	99	98	98	88	84	88	88
Total agricultural products	90	90	93	95	94	94	88	90	90	90 1/2
Wholesale products in general (*) . .	83.3	82.8	83.0	83.3	84.2	84.3	88.3	93.4	86.9	93.1
B: CORRECTED FOR SEASONAL VARIATION										
Cereals and farm crops	96	85	80	80	77	75	89	118	—	—
Livestock and livestock products . .	94	92	89	90	88	89	92	88	—	—
Total agricultural products	94	90	88	89	86	86	92	93	—	—

(2) Household goods of all kinds, and clothing. — (*) Index-numbers taking account of payments under the Wheat Act the Cattle Subsidy Act, and Government payments for milk. — (*) Index-numbers by the Board of Trade, reduced to 1927-1929=100. — (*) Agricultural year: July 1-June 30.

DESCRIPTION	April	March	Feb.	Jan.	Dec.	Nov.	April	April	YEAR	
	1939	1939	1939	1939	1938	1938	1938	1937	1938	1937
Argentina										
(Banco Central de la Republica Argentina)										
1926 = 100.										
Cereals and linseed	75.6	78.1	72.4	77.4	77.2	70.9	113.9	102.6	90.6	101.3
Meat	90.8	90.7	90.0	85.4	85.7	88.0	97.9	85.2	94.8	93.6
Hides and skins	75.0	84.3	81.8	86.6	87.9	88.0	79.1	139.4	81.9	118.6
Wool	85.8	85.5	84.5	86.8	84.9	88.9	95.4	160.4	92.5	143.7
Dairy products	78.3	78.2	78.2	74.0	63.1	67.5	90.9	84.3	83.9	93.7
Forest products	101.6	101.6	101.6	101.6	100.5	100.9	100.6	97.8	100.0	98.6
Total agricultural products	78.9	81.3	77.1	80.4	80.1	76.6	99.8	107.6	90.6	105.1
Non agricultural commodities	109.3	109.0	109.2	109.2	109.1	108.1	110.1	114.5	109.4	114.4
Wholesale products in general	102.9	103.2	102.4	103.1	103.0	101.5	108.1	113.2	105.5	112.6
Australia (Commonwealth)										
(Commonwealth Bureau of Census and Statistics)										
1928-29 = 100.										
Agricultural field products	74.6	77.5	80.2	78.4	78.1	79.8	85.6	...	91.4	94.9
Pastoral products	73.1	74.6	66.5	65.8	66.6	69.5	71.1	...	78.6	85.7
Farmyard and dairy products	87.3	89.1	89.3	87.7	87.4	87.5	80.4	...	81.1	76.1
Total agricultural products	76.3	78.3	75.4	74.2	74.4	76.4	77.8	...	83.4	87.0
Belgium										
(Belgische Boerenbond — Boerenbond belge)										
Average of corresponding months										
1909-1914 = 100.										
Field products . . . . .	...	486	480	504	489	487	561	594	541	577
Livestock products . . . . .	...	634	644	687	719	725	634	547	689	617
Total agricultural products . . . . .	...	587	592	629	646	650	611	562	643	604
Rent . . . . .	...	650	650	650	650	650	650	645	650	647
Agricultural wages . . . . .	...	905	900	900	900	900	870	845	887	851
Fertilizers . . . . .	...	474	475	471	478	476	469	421	471	443
Feedingstuffs . . . . .	...	545	547	585	574	540	670	601	631	610
Total production expenses (including those not specified) . . . . .	...	753	752	759	751	744	760	731	757	736
Bohemia										
(Institute for Farm Accounting and Agricultural Economics)										
1913-14 = 100										
A: SUGARBEET REGION										
Plant products . . . . .	...	...	636	619	591	567	605	562	584	576
Livestock products . . . . .	...	...	559	562	575	577	500	535	531	550
Total agricultural products . . . . .	...	...	604	595	584	571	562	551	562	565
Total production expenses . . . . .	...	...	826	818	805	806	797	784	801	783
B: NON-SUGARBEET REGION										
Plant products . . . . .	...	...	683	677	668	658	660	608	656	623
Livestock products . . . . .	...	...	545	553	556	553	471	527	504	539
Total agricultural products . . . . .	...	...	600	603	601	595	546	559	565	572
Total production expenses . . . . .	...	...	843	833	819	819	806	797	811	796

(1) July 1-June 30.

DESCRIPTION	April	March	Feb.	Jan.	Dec.	Nov.	April	April	YEAR	
	1939	1939	1939	1939	1938	1938	1938	1937	1938	1937
Canada										
(Dominion Bureau of Statistics, Internal Trade Branch) 1926 = 100.										
Field products (grain, etc.)	56.1	54.9	54.7	54.7	53.8	54.6	83.2	94.4	69.0	88.3
Livestock and livestock products . . .	81.3	82.1	81.5	81.7	82.8	82.1	81.2	86.3	81.3	85.0
<i>Total Canadian farm products</i> . . .	65.5	65.1	64.7	64.8	64.6	64.9	82.5	91.4	73.6	87.1
Fertilizers	83.4	83.4	83.0	82.8	82.8	82.8	75.2	74.5	78.9	74.5
Consumers' goods (other than foodstuffs, beverages and tobacco)	75.3	75.4	76.1	76.2	76.7	76.7	77.1	78.1	77.2	78.4
<i>Wholesale products in general.</i> . . .	73.4	73.2	73.2	73.2	73.3	73.5	82.3	86.2	78.3	84.6
Chili										
(Dirección General de Estadística) 1913 = 100										
Cereals . . . . .	...	...	...	...	461.5	560.6	545.7	596.5	551.0	572.3
Other plant products . . . . .	...	...	...	...	359.0	373.9	374.4	395.0	375.4	375.3
Meat animals . . . . .	...	...	...	...	329.4	369.7	363.7	339.7	380.3	381.2
Meat . . . . .	...	...	...	...	283.9	317.6	302.2	278.1	324.7	316.2
<i>Total agricultural products</i> . . . . .	...	...	...	...	379.9	424.7	418.3	439.4	424.3	430.0
<i>Domestic industrial products</i> . . . .	...	...	...	...	460.1	473.9	474.0	495.6	472.5	489.4
<i>Wholesale products in general.</i> . . .	..	...	...	...	489.9	508.7	510.7	527.1	510.7	522.6
United States										
(Bureau of Agricultural Economics) Average 1909-10 to 1913 14 = 100.										
A: UNCORRECTED FOR SEASONAL VARIATION										
Cereals	67	66	66	66	63	60	82	154	74	126
Cotton and cottonseed	70	71	70	71	70	73	71	117	70	95
Fruits	82	81	78	76	73	71	68	142	73	122
Truck crops (market garden crops) . .	102	114	108	96	108	98	117	118	105	123
Meat animals	114	116	116	112	109	111	114	130	114	132
Dairy products	95	100	107	109	112	109	110	120	109	124
Chickens and eggs	87	88	91	97	127	131	93	104	108	111
Miscellaneous	86	83	92	109	108	95	86	139	95	130
<i>Total agricultural products</i>	89	91	92	94	96	94	94	130	95	121
<i>Commodities bought for use in living and production (1)</i>	120	120	120	120	120	121	125	134	123	130
<i>Agricultural wages (1)</i>	121	—	—	117	—	—	121	112	116	120
B: CORRECTED FOR SEASONAL VARIATION										
Cereals	66	65	65	67	64	62	81	152	—	—
Cotton and cottonseed	69	72	72	73	74	74	70	117	—	—
Fruits	79	82	82	83	81	81	67	138	—	—
Truck crops (market garden crops) . .	102	114	108	96	108	102	98	127	—	—
Meat animals	110	113	117	116	116	116	111	126	—	—
Dairy products	96	98	104	105	107	105	110	121	—	—
Chickens and eggs	105	107	90	86	98	103	111	129	—	—
Miscellaneous	86	87	98	109	107	90	86	139	—	—
<i>Total agricultural products</i>	90	92	93	95	96	95	95	130	—	—

(1) 1910-1914 = 100.

DESCRIPTION	April	March	Feb.	Jan.	Dec.	Nov.	April	April	YEAR	
	1938	1939	1939	1939	1938	1938	1938	1937	1938	1937
United States										
(Bureau of Labor)										
1926 = 100.										
Grains	55.2	54.5	54.7	56.3	54.4	50.9	66.0	119.2	60.6	98.3
Livestock and poultry	75.5	78.2	79.2	78.0	74.4	75.2	79.3	93.6	79.0	95.5
Other farm products	58.5	61.0	62.9	63.2	66.5	67.4	62.0	83.4	63.9	77.2
Total agricultural products	63.7	65.8	67.2	67.2	67.6	67.8	68.4	92.2	68.5	86.4
Agricultural implements	93.3	93.2	93.2	93.4	93.5	93.7	96.3	92.1	95.5	94.0
Fertilizer materials	69.6	69.7	69.3	70.2	68.6	67.7	70.1	70.7	69.2	71.2
Mixed fertilizers	72.8	73.8	73.7	74.8	73.8	73.2	69.7	72.0	72.2	73.2
Cattle feed	92.1	84.1	78.2	79.9	76.6	70.5	79.0	146.8	76.9	110.5
Non-agricultural commodities	78.8	79.0	78.9	78.9	79.0	79.5	80.8	86.9	80.6	86.2
Wholesale products in general	76.2	76.7	76.9	76.9	77.0	77.5	78.7	88.0	78.6	86.3
Finland										
(Central Bureau of Statistics)										
1935 = 100.										
Agricultural products	114	115	119	118	120	119	115	113	117	115
Forestry products	149	145	140	145	146	141	150	156	145	165
Feedingstuffs	126	129	133	123	121	119	133	132	129	133
Fertilizers	110	109	107	107	105	105	113	109	109	109
Wholesale products in general	113	113	113	113	113	112	115	122	114	122
Hungary										
(Central Royal Bureau of Statistics)										
1929 = 100.										
Cereals	88.7	88.6	85.1	85.2	84.9	...	...	...	89.1	88.9
Total raw plant products ⁽¹⁾	81.5	80.8	76.9	76.5	75.4	...	...	...	76.9	69.2
Meat animals, meat and lard	61.6	61.7	62.9	63.9	65.7	...	...	...	68.4	75.5
Total livestock products ⁽¹⁾	63.9	64.1	65.4	64.6	64.9	...	...	...	65.6	68.5
Total agricultural products	76.0	75.6	73.3	72.8	72.1	...	...	...	73.4	69.0
Products of agricultural industries	94.8	95.0	95.0	95.4	95.3	...	...	...	103.0	106.2
Industrial raw materials and products	92.0	92.0	92.1	92.2	92.6	...	...	...	93.3	95.2
Wholesale products in general	86.0	86.0	85.2	85.1	85.0	...	...	...	86.8	86.3
Ireland										
(Department of Industry and Commerce)										
Average 1911-1913 = 100.										
Agricultural products in general . . . . .	...	110.4	109.4	109.6	113.0	113.9	108.1	103.6	111.9	104.9
Italy										
(Istituto Centrale di Statistica)										
1928 = 100.										
Plant products . . . . .	...	...	...	...	89.3	89.9	86.0	78.4	88.6	79.7
Livestock products . . . . .	...	...	...	...	86.3	87.9	85.1	82.9	86.7	91.1
Total agricultural products . . . . .	...	...	...	...	88.2	89.0	85.4	79.8	87.8	82.8
Feedingstuffs . . . . .	...	...	...	...	102.3	105.1	98.4	82.1	99.6	83.6
Fertilizers, and chemicals for plant diseases . . . . .	...	...	...	...	100.0	99.7	102.1	92.2	100.7	94.2
Wholesale products in general	97.7	97.6	97.2	97.1	96.4	97.2	95.0	86.1	95.3	89.1

⁽¹⁾ Including unspecified products.

DESCRIPTION	April	March	Feb.	Jan.	Dec.	Nov.	April	April	YEAR	
	1939	1939	1939	1939	1938	1938	1938	1937	1938	1937
Lithuania										
(Lietuvos Bankas)										
1926-1929 = 100.										
Cereals . . . . .	...	41	39	39	39	38	42	48	41	46
Cattle, fowls . . . . .	...	54	53	52	53	52	51	50	51	49
Leather, hides, wool . . . . .	...	53	54	54	53	52	50	62	51	60
Meat, dairy products and eggs . . . . .	...	47	49	51	51	49	46	41	47	44
Total agricultural products . . . . .	...	47	46	47	47	46	46	47	46	47
Wholesale products in general . . . . .	...	52	51	52	52	51	51	52	51	51
Norway										
(Kgl. Selskap for Norges Vel)										
Average 1909-1914 = 100.										
Cereals	163	163	166	167	167	167	173	171	168	173
Potatoes	140	141	147	150	134	130	222	142	174	188
Pork	115	116	125	133	133	133	113	102	127	117
Other meat	165	169	166	162	171	165	191	154	179	187
Dairy products	179	179	179	179	179	177	173	153	176	165
Eggs	110	99	99	114	143	153	99	101	124	124
Concentrated feedingsuffs	154	155	154	155	157	161	151	148	158	152
Maize	160	160	159	162	158	155	152	136	158	149
Fertilizers	94	94	94	93	92	89	103	90	98	95
New Zealand										
(Census and Statistics Office)										
Average 1909-1913 = 100.										
Dairy products	117.0	123.9	124.9	115.9	114.2	121.2	117.8	97.6	121.0	109.2
Meat	164.6	167.2	170.7	175.0	177.8	181.9	174.0	164.5	175.2	165.1
Wool	108.4	110.4	108.9	114.3	117.8	114.2	114.0	184.6	117.6	176.8
Other pastoral products	82.0	85.0	92.5	90.0	90.6	89.2	99.8	145.1	94.7	153.5
All pastoral and dairy products	120.6	129.8	131.4	130.2	131.7	134.9	131.9	138.1	134.0	142.3
Field products	154.6	153.4	145.1	136.0	136.3	135.9	139.6	137.0	139.6	136.5
Total agricultural products	126.3	130.4	131.7	130.3	131.8	135.0	132.1	138.0	134.2	142.2
Poland										
(Central Bureau of Statistics)										
1928 = 100.										
Raw plant products	39.5	37.6	36.4	36.2	36.3	35.3	47.6	54.2	43.6	53.4
Meat animals	44.3	44.4	44.0	42.3	42.4	40.9	42.4	43.7	42.1	43.5
Dairy products and eggs	47.9	47.1	49.3	50.6	52.1	53.1	48.0	47.6	47.6	48.2
Products directly sold by farmers	42.6	41.6	41.3	40.9	41.2	40.5	46.0	49.5	43.8	49.2
Flour and groats	44.9	43.4	43.7	44.2	44.7	43.7	51.6	56.7	49.1	55.9
Meat and lard-fat	50.3	48.4	47.8	48.1	47.4	46.6	49.1	47.8	48.3	48.1
Sugar, alcohol, beer	71.3	71.3	71.3	71.3	71.3	71.3	71.3	71.3	71.3	71.3
Products of agricultural industries	55.4	54.3	54.1	54.4	54.4	53.8	57.2	58.4	56.1	58.3
Total agricultural products	48.9	47.8	47.6	47.6	47.7	47.0	51.5	53.9	49.9	53.7
Commodities bought by farmers	64.9	64.9	64.7	64.5	64.4	64.3	65.5	66.4	65.0	66.1
Wholesale products in general	55.6	55.1	55.0	54.9	55.0	54.6	57.2	60.1	56.2	59.4

(2) Agricultural year: April 1-March 31.

DESCRIPTION	April	March	Feb.	Jan.	Dec.	Nov.	April	April	YEAR	
	1939	1939	1939	1939	1938	1938	1938	1937	1937-38 (¹)	1936-37 (²)
Netherlands										
(Bureau of Agriculture)										
Average 1924-25 to 1928-29 = 100.										
Plant products	62	59	59	59	57	56	61	61	63	58
Livestock products	66	64	60	61	62	61	67	64	66	57
Total agricultural products	65	63	60	61	61	60	66	63	65	57
Wholesale products in general (¹) . .	69.8	69.8	69.9	70.2	70.6	70.2	72.5	77.1	³ 71.9	³ 76.2
Agricultural wages	74	74	74	74	74	74	68	68	69	68
Sweden										
(Sveriges Allmänna Lantbrukssällskap)										
Average 1909-1913 = 100.										
Plant products	104	104	105	104	102	103	123	128	115	123
Meat animals	146	142	142	141	132	130	129	118	133	126
Dairy products	160	161	163	162	163	156	140	132	142	134
Livestock and livestock products . .	155	154	156	156	155	149	136	128	139	132
Total agricultural products	138	138	139	139	137	134	132	128	131	129
Feedingstuffs	140	141	144	144	143	142	136	139	140	139
Fertilizers	94	94	94	94	93	94	97	94	96	94
Building materials	187	187	180	180	180	180	187	193	182	191
Machinery and implements	204	204	204	204	204	204	225	196	218	203
Sundries	121	120	120	120	119	120	126	127	124	127
Total commodities purchased	143	144	144	144	143	143	147	144	146	145
Wholesale products in general	135	134	134	134	134	134	138	146	137	145
Agricultural wages . . . . .	...	...	...	...	...	...	204	193	³ 204	194
Switzerland										
(Schweizerischer Bauernverband)										
1914 = 100.										
Slaughter cattle . . . . .	...	108	107	109	110	115	122	122	117	122
Slaughter pigs . . . . .	...	123	124	127	127	127	126	126	125	127
Milk (base price) . . . . .	...	121	121	121	121	121	119	119	120	118
Total agricultural products	117	117	117	119	120	121	122	122	126	125
Feedingstuffs (¹)	111	111	109	108	108	106	106	99	105	97
Fertilizers (²)	101	101	100	100	102	102	92	85	96	85
Wholesale products in general (²) . .	105.9	105.3	105.2	105.7	106.1	106.1	108.1	113.0	107.1	111.2
Yugoslavia										
(National Bank of the Kingdom of Yugoslavia)										
1926 = 100.										
Plant products	84.9	85.3	85.8	86.9	85.2	81.6	87.1	65.8	85.8	74.1
Livestock products	63.5	63.1	61.9	64.1	65.7	67.2	65.1	65.7	65.8	65.1
Industrial products	76.8	76.6	76.5	76.6	76.7	75.9	80.2	76.6	78.2	77.6
Wholesale products in general	77.1	76.9	76.6	77.5	77.5	76.7	79.3	72.3	78.3	74.7

(¹) Index numbers calculated by the Central Statistical Bureau of the Netherlands; base 1926-1930. — (²) Index numbers calculated by the Bundesamt für Industrie, Gewerbe und Arbeit; base July 1914. — (³) Agricultural year: July 1 - June 30. — (⁴) Calendar years 1938 and 1937 respectively. — (⁵) Provisional data.

VARIATIONS IN THE INDEX-NUMBERS OF PRICES

The index-numbers of prices of agricultural and other products of interest to the farmer, as published by the various countries, are often very heterogeneous and consequently great care has to be taken in drawing conclusions from the supplementary information given in the following comparative summary table.

COUNTRIES	Percentage variations in the index-numbers of prices of			
	agricultural products		all products	
	agricultural products		all products	
	April 1939 in comparison with			
	March 1939		April 1938	
Germany (products sold by farmers)	+	1.0	—	0.0
Germany (wholesale prices)	—	0.5	—	0.2
England and Wales (a)	—	0.0	+	1.5
England and Wales (b)	+	4.4	+	2.3
Argentina	—	3.0	—	2.2
Australia	—	2.6	—	20.9
Canada	—	0.6	—	1.9
United States: Bureau of Agric. Econ. (a)	—	2.2	—	20.6
United States: Bureau of Agric. Econ. (b)	—	2.2	—	5.3
United States: Bureau of Labor	—	3.2	—	5.3
Finland	—	0.9	—	6.9
Hungary	+	0.5	—	0.9
New Zealand	+	3.1	—	—
Netherlands	+	3.2	—	4.4
Poland	+	2.3	—	1.5
Sweden	—	0.0	—	5.0
Switzerland	—	0.0	+	4.6
Yugoslavia } vegetable products.	—	0.5	—	4.1
Yugoslavia } animal products.	+	0.6	—	2.5
				2.8

(a) Not corrected for seasonal variation. — (b) Corrected for seasonal variation.

EXCHANGE RATES

RELATION OF VARIOUS CURRENCIES TO THEIR PARITY WITH THE U. S. DOLLAR (1)

NATIONAL CURRENCIES	Parity	Actual Exchange Rates				Percentage deviation from parity with U.S. dollar: premium (+) or discount (—)			
		May 12 1939	May 5 1939	April 28 1939	April 21 1939	May 12 1939	May 5 1939	April 28 1939	April 21 1939
Germany: reichsmark	40.332	40.116	40.114	40.111	40.072	— 0.5	— 0.5	— 0.5	— 0.6
Argentina: paper peso	71.959	n.31.208	n.31.207	n.31.208	n.31.204	— 56.6	— 56.6	— 56.6	— 56.6
Belgium: belga	23.542	17.012	17.020	16.973	16.851	— 27.7	— 27.7	— 27.9	— 28.6
	16.950					+ 0.4	+ 0.4	+ 0.1	— 0.9
Canada: dollar	100.000	99.588	99.512	99.533	99.480	— 0.4	— 0.5	— 0.5	— 0.5
Denmark: crown	45.374	20.895	20.894	20.890	20.887	— 53.9	— 54.0	— 54.0	— 54.0
Spain: peseta	32.669	11.125	11.125	11.130	11.130	— 65.9	— 65.9	— 65.9	— 65.9
France: franc (2)	6.533	2.648	2.648	2.649	2.647	— 60.1	— 60.1	— 60.1	— 60.1
Great Britain: £ sterling (3)	8.2397	4.6810	4.6810	4.6808	4.6799	— 43.2	— 43.2	— 43.2	— 43.2
Hungary: pengő	29.612	n.19.600	n.19.600	n.19.600	n.19.600	— 33.8	— 33.8	— 33.8	— 33.8
India: rupee	61.798	34.952	34.958	34.963	34.960	— 43.4	— 43.4	— 43.4	— 43.4
Italy: lira	8.911	5.260	5.260	5.260	5.260	— 41.0	— 41.0	— 41.0	— 41.0
	5.263					— 0.1	— 0.1	— 0.1	— 0.1
Japan: yen	84.396	27.276	27.276	27.277	27.266	— 67.7	— 67.7	— 67.7	— 67.7
Netherlands: florin	68.057	53.537	53.399	53.467	53.082	— 21.3	— 21.5	— 21.4	— 22.0
Poland: zloty	18.994	18.812	18.805	18.805	18.795	— 1.0	— 1.0	— 1.0	— 1.0
Romania: leu	1.013	n. 0.714	n. 0.705	n. 0.706	n. 0.705	— 29.5	— 30.4	— 30.3	— 30.4
Sweden: crown	45.374	24.110	24.109	24.108	24.091	— 46.9	— 46.9	— 46.9	— 46.9
Switzerland: franc	32.669	22.454	22.449	22.477	22.422	— 31.3	— 31.3	— 31.2	— 31.4

(1) Parities and current rates are both expressed in U. S. cents (the £ sterling is expressed in dollars). The dollar contains 0.38867 grams of fine gold, i. e. 40.94 % less than formerly. — (2) Former parity. — (3) New parity as from 31 March 1935. — (4) 1 Indochinese piastre = 10 francs; the actual rates vary only slightly from this. — (5) 97 1/2 Egyptian piastres = 1 £ sterling (fixed rate). — (6) New parity as from Oct. 5, 1936. — (7) Unofficial rate.

LATEST INFORMATION

TRADE

Statistics received too late for inclusion in the tables and statistics for April already available.

COUNTRIES		EXPORTS		IMPORTS		COUNTRIES		EXPORTS		IMPORTS	
PRODUCTS AND UNITS		1937	1938	1937	1938	PRODUCTS AND UNITS		1937	1938	1937	1938
DOMINICAN REPUBLIC						NETHERLANDS INDIES: JAVA AND MADURA					
Maize	1000 centals	39	13	—	—	Maize	1000 centals	269	200	—	—
Cotton	" "	0	0	—	—	Rice	" "	6	4	—	—
Cacao	1000 lb.	4,855	4,553	—	—	Cotton	" "	2	1	—	—
Coffee	" "	3,494	1,931	—	—	Cacao	1000 lb.	84	496	—	—
INDIA: BY LAND						Tea	" "	11,314	11,539	—	—
Wheat	1000 centals	20	36	12	16	Coffee	" "	4,004	4,830	—	—
Rice	" "	45	61	153	203	BRITISH MALAYA					
Linseed	" "	—	—	17	4	Wheat	1000 centals	0	0	2	1
Wool	1000 lb.	—	—	1,517	505	Wheat flour	" "	12	10	148	137
Butter	" "	—	—	1,111	992	Rice	" "	403	367	1,671	1,581
Tea	" "	966	1,096	—	—	Butter	1000 lb.	51	42	384	434
EGYPT						Cheese	" "	2	2	33	37
Wheat	1000 centals	0	2	0	0	Cacao	" "	26	2	33	4
Wheat flour	" "	0	0	2	0	Tea	" "	137	123	448	315
Barley	" "	6	0	4	2	Coffee	" "	452	494	2,075	2,075
Oats	" "	—	—	0	0	TURKEY					
Maize	" "	0	3	0	0	Wheat	1000 centals	30	268	—	—
Rice	" "	254	71	0	0	Wheat flour	" "	7	3	—	—
Linseed	" "	0	0	0	0	Rye	" "	5	87	—	—
Cotton	" "	852	676	—	—	Barley	" "	102	219	—	—
Wool	1000 lb.	276	117	49	18	Oats	" "	9	21	—	—
Butter	" "	40	44	51	82	Maize	" "	0	4	0	0
Cheese	" "	2	2	472	633	Rice	" "	—	—	0	0
Cacao	" "	—	—	20	13	Cotton	" "	22	171	—	—
Tea	" "	—	—	1,360	1,733	Wool	1000 lb.	1,477	1,343	—	—
Coffee	" "	—	—	977	2,359	Butter	" "	0	0	—	—
GREECE						Cheese	" "	0	0	—	—
Wheat	1000 centals	0	0	375	1,135	Tea	" "	—	—	245	165
Wheat flour	" "	0	0	5	2	Coffee	" "	—	—	897	1,241
Rice	" "	0	0	0	0	NEW ZEALAND					
Barley	" "	0	0	17	6	Wheat	1000 centals	0	0	151	278
Oats	" "	0	0	0	0	Wheat flour	" "	0	0	0	0
Maize	" "	0	0	0	0	Barley	" "	0	0	22	85
Rice	" "	0	0	190	67	Oats	" "	2	0	0	0
Linseed	" "	0	0	48	34	Maize	" "	0	0	2	0
Cotton	" "	0	0	6	4	Rice	" "	0	0	4	7
Wool	1000 lb.	84	143	836	306	Linseed	" "	0	0	0	0
Butter	" "	0	0	71	90	Wool { a)	1000 lb.	45,373	43,378	2	31
Cheese	" "	2	13	578	75	b)	" "	7,524	6,894	0	0
Cacao	" "	—	—	443	225	Butter	" "	35,638	40,481	0	0
Tea	" "	—	—	24	26	Cheese	" "	23,947	22,454	0	0
Coffee	" "	—	—	615	2,454	Cacao	" "	—	—	115	800
CHINA						Tea	" "	37	15	985	1,878
Wheat	1000 centals	49	0	1,685	0	Coffee	" "	0	0	62	44
Wheat flour	" "	131	0	407	735	GERMANY (1)					
Maize	" "	0	0	—	—	April	April	April	April		
Rice	" "	48	2	795	1,181	Wheat	1000 centals	0	0	1,657	3,139
Linseed	" "	8	8	—	—	Wheat flour	" "	18	0	59	95
Cotton	" "	0	159	504	4	Rice	" "	43	0	63	116
Wool	1000 lb.	955	489	—	—	Barley	" "	0	0	780	1,421
Butter	" "	—	—	33	64						
Tea	" "	5,719	5,271	445	24						

(a) Wool, greasy. — (b) Wool, scoured. — (1) From 1 April 1939 the data refer to the former territory of the Reich, the Ostmark, the Sudeten lands and the Memel territory: they do not include the trade between these territories and the Bohemian-Moravian protectorate.

COUNTRIES PRODUCTS AND UNITS	EXPORTS		IMPORTS		COUNTRIES PRODUCTS AND UNITS	EXPORTS		IMPORTS	
	1939	1938	1939	1938		1939	1938	1939	1938
GERMANY (concluded)					ITALY (concluded)				
Oats 1000 centals	0	0	198	722	Oats 1000 centals	0	0	33	22
Maize " "	0	0	532	2,591	Maize " "	11	0	346	30
Rice " "	54	34	608	421	Rice " "	209	335	0	0
Linseed " "	0	0	599	313	Linseed " "	0	0	112	80
Cotton " "	0	0	513	438	Cotton " "	0	0	201	312
Wool { a) 1000 lb.	0	0	37,234	32,214	Wool { a) 1000 lb.	271	0	4,112	5,886
b) " "	0	0	2,346	2,136	b) " "	15	333	320	373
Butter " "	0	0	15,280	13,109	Butter " "	143	146	110	44
Cheese " "	11	13	4,791	4,938	Cheese " "	5,161	5,113	791	750
Cacao " "	0	0	15,397	12,760	Cacao " "	—	—	1,065	2,024
Tea " "	11	13	1,446	862	Tea " "	—	—	22	31
Coffee " "	0	0	30,144	34,139	Coffee " "	—	—	7,249	8,393
ESTONIA					NETHERLANDS				
Wheat 1000 centals	0	0	0	0	Wheat 1000 centals	0	0	1,044	1,064
Wheat flour " "	0	0	0	0	Wheat flour " "	0	1	163	123
Rye " "	0	28	0	0	Rice " "	4	25	342	86
Barley " "	0	0	0	34	Barley " "	33	16	356	292
Oats " "	0	0	0	41	Oats " "	37	35	117	50
Maize " "	0	0	0	0	Maize " "	0	1	1,349	1,322
Rice " "	—	—	2	1	Rice " "	198	123	1,079	533
Linseed " "	0	0	0	0	Linseed " "	7	5	1,062	779
Cotton " "	0	0	10	11	Cotton " "	1	0	109	60
Wool 1000 lb.	0	0	71	42	Wool { a) 1000 lb.	1,276	84	1,175	820
Butter " "	2,218	2,037	0	0	b) " "	49	55	1,111	1,047
Cheese " "	57	40	0	0	Butter " "	11,755	9,885	0	0
Cacao " "	—	—	55	55	Cheese " "	9,295	9,952	53	55
Tea " "	—	—	7	7	Cacao " "	26	60	12,549	11,008
Coffee " "	—	—	24	29	Tea " "	15	13	3,047	2,152
FRANCE					Coffee " "	1,259	981	11,308	4,641
Wheat 1000 centals	442	1	1,026	911	POLAND-DANZIG				
Wheat flour " "	442	123	85	89	Wheat 1000 centals	100	1	0	22
Rye " "	0	0	1	0	Wheat flour " "	49	43	0	0
Barley " "	6	0	101	151	Rye " "	1,302	0	0	3
Oats " "	1	0	38	31	Barley " "	386	525	0	0
Maize " "	7	2	710	851	Oats " "	143	26	0	0
Rice " "	8	33	1,514	1,100	Maize " "	0	0	0	0
Linseed " "	0	0	474	736	Rice " "	0	5	0	5
Cotton " "	62	31	394	446	Linseed " "	0	0	10	0
Wool 1000 lb.	4,901	3,382	37,194	35,340	Cotton " "	0	0	188	150
Butter " "	454	611	218	181	Wool 1000 lb.	0	0	6,590	4,339
Cheese " "	2,747	2,906	2,498	2,176	Butter " "	1,841	2,445	0	0
Cacao " "	0	46	8,940	7,390	Cheese " "	0	7	51	24
Tea " "	2	2	229	218	Cacao " "	—	—	1,550	1,054
Coffee " "	0	2	31,345	29,304	Tea " "	0	0	337	311
HUNGARY					Coffee " "	0	0	1,437	1,226
Wheat 1000 centals	1,422	344	0	0	UNITED KINGDOM				
Wheat flour " "	181	66	0	0	Wheat 1000 centals	67	40	8,352	7,667
Rice " "	30	158	0	0	Wheat flour " "	161	162	745	871
Barley " "	3	1	0	0	Rye " "	—	—	1,269	1,477
Oats " "	0	0	0	0	Barley " "	—	—	77	87
Maize " "	115	642	0	0	Oats " "	—	—	4,232	3,455
Rice " "	0	0	8	67	Maize " "	264	194	351	369
Linseed " "	0	0	0	0	Rice " "	12	11	634	449
Cotton " "	0	0	49	34	Linseed " "	—	—	909	1,097
Wool 1000 lb.	46	0	207	174	Cotton " "	26	32	112,227	113,408
Butter " "	57	397	0	0	Wool 1000 lb.	32,190	34,178	78,638	97,619
Cheese " "	51	282	0	0	Butter " "	423	935	24,718	25,098
Cacao " "	—	—	1,191	604	Cheese " "	315	370	38,984	11,056
Tea " "	—	—	66	44	Cacao " "	474	578	21,094	28,808
Coffee " "	—	—	545	373	Tea " "	7,657	5,972	6,307	9,070
ITALY					Coffee " "	794	1,162	6,307	9,070
Wheat 1000 centals	18	0	966	282	SWEDEN				
Wheat flour " "	250	191	6	4	Wheat 1000 centals	1	17	103	97
Rice " "	0	0	150	44	Wheat flour " "	1	0	1	0
Barley " "	7	0	128	50	Rice " "	0	0	7	30
					Barley " "	0	0	0	0

(a) Wool, greasy. — (b) Wool, scoured.

COUNTRIES PRODUCTS AND UNITS	EXPORTS		IMPORTS		COUNTRIES PRODUCTS AND UNITS	EXPORTS		IMPORTS	
	1939	1938	1939	1938		1939	1938	1939	1938
SWEDEN (continued)					ARGENTINA				
Oats 1000 centals	16	7	6	120	Wheat 1000 centals	9,152	3,937	—	—
Maize " "	0	0	32	290	Wheat flour " "	220	115	—	—
Rice " "	0	0	6	17	Rice " "	530	0	—	—
Linseed " "	—	—	89	121	Barley " "	832	212	—	—
Cotton " "	—	—	124	36	Oats " "	611	324	—	—
Wool (a) 1000 lb.	—	—	4,497	1,781	Maize " "	6,733	1,063	—	—
Butter " "	3,832	4,738	0	0	Linseed " "	1,605	1,773	—	—
Cheese " "	0	0	386	201	Cotton " "	0	0	—	—
Cacao " "	—	—	1,105	935	Wool (a) 1000 lb.	27,285	36,793	—	—
Tea " "	—	—	101	88	Wool (b) " "	5,207	3,971	—	—
Coffee " "	—	—	9,559	8,918	Butter " "	710	701	—	—
					Cheese " "	450	322	—	—
SWITZERLAND					BRAZIL				
Wheat 1000 centals	0	1	474	606	Coffee 1000 lb.	166,428	195,853	—	—
Rye " "	0	0	1	20	BURMA				
Barley " "	0	0	192	236	Wheat 1000 centals	3	1	1	12
Oats " "	0	0	480	435	Wheat flour " "	0	0	42	86
Maize " "	0	0	116	54	Barley " "	—	—	0	0
Rice " "	0	0	60	46	Maize " "	62	20	—	—
Cotton " "	0	1	85	43	Rice " "	9,065	8,688	3	3
Wool 1000 lb.	44	9	2,200	1,806	Linseed " "	0	0	0	0
Butter " "	2	0	13	13	Cotton " "	53	21	0	0
Cheese " "	4,888	3,737	320	291	Wool 1000 lb.	37	0	0	0
Cacao " "	—	—	2,271	1,420	Butter " "	—	—	55	55
Tea " "	0	2	139	123	Cheese " "	—	—	9	7
Coffee " "	2	0	3,034	3,351	Tea " "	24	0	154	564
					Coffee " "	82	0	24	22
CZECHO-SLOVAKIA (x)					CEYLON				
Wheat 1000 centals	112	57	12	251	Wheat 1000 centals	—	—	1	3
Wheat flour " "	18	0	2	0	Wheat flour " "	—	—	30	22
Rye " "	110	0	4	332	Barley " "	—	—	1	0
Barley " "	212	52	6	0	Oats " "	—	—	2	2
Oats " "	7	74	0	0	Rice " "	0	0	1,114	866
Maize " "	0	31	18	139	Cotton " "	0	0	0	2
Rice " "	0	0	24	40	Butter 1000 lb.	—	—	62	110
Linseed " "	0	0	20	58	Cheese " "	—	—	22	29
Cotton " "	1	3	99	151	Cacao " "	595	503	—	—
Wool 1000 lb.	18	44	551	3,481	Tea " "	19,244	24,374	0	0
Butter " "	0	225	492	0	Coffee " "	0	0	183	243
Cheese " "	18	119	384	262					
Cacao " "	0	0	3,338	1,874					
Tea " "	0	0	205	71					
Coffee " "	26	0	4,594	2,425					
CANADA					AUSTRALIA				
Wheat 1000 centals	1,699	971	2	645	Wheat 1000 centals	3,720	10,003	0	0
Wheat flour " "	539	362	6	13	Wheat flour " "	1,472	1,363	0	0
Rice " "	0	0	0	0	Barley " "	104	157	0	0
Barley " "	160	134	0	0	Oats " "	3	2	0	0
Oats " "	146	31	3	138	Maize " "	0	0	0	0
Maize " "	0	0	215	87	Rice " "	12	10	2	2
Rice " "	5	0	39	52	Linseed " "	0	0	17	12
Linseed " "	0	0	14	40	Cotton " "	0	0	5	10
Cotton " "	—	—	45	68	Wool (a) 1000 lb.	53,828	62,737	1,856	2,114
Wool 1000 lb.	4	192	944	1,519	Wool (b) " "	3,878	3,455	181	159
Butter " "	633	22	0	340	Butter " "	15,353	15,141	0	0
Cheese " "	377	1,620	99	174	Cheese " "	1,786	1,294	9	11
Cacao " "	—	—	390	1,839	Cacao " "	0	0	6,413	1,036
Tea " "	—	—	7,899	2,213	Tea " "	33	31	4,004	3,360
Coffee " "	11	13	2,471	2,815	Coffee " "	4	13	531	606

(a) Wool, greasy. — (b) Wool, scoured.

(x) For 1939 the figures refer to Bohemia and Moravia and cover the period March 16 to April 30.

PRODUCTION

Algeria: Rain in April was very heavy and caused some flooding.

Among cereal crops is reported a first appearance of rust in the littoral and sub-littoral on leaves and ears, particularly on early soft wheat. Some damage was also done in Oran by white worms. Nevertheless, crops are reported to be good on the whole, particularly barley. The following figures are the provisional crop forecasts made in April compared with the final results of preceding years. The realization of these approximate forecasts was dependent on an improvement of weather conditions in May.

Production of Cereals.

	(1) 1939	1938	Average 1933-37	1939	1938	Average 1933-37	% 1939 1938 Average = 100 = 100	
		(000 centals)			(000 bushels)			
Hard wheat	18,629	13,744	13,945	31,048	22,905	23,242	135	134
Soft wheat	8,267	7,115	6,700	13,779	11,859	11,166	116	123
<i>Total wheat</i>	<i>26,896</i>	<i>20,859</i>	<i>20,645</i>	<i>44,827</i>	<i>34,765</i>	<i>34,408</i>	<i>129</i>	<i>130</i>
Rye	25	25	18	44	44	31	100	140
Barley	22,046	12,791	16,389	45,931	26,648	34,143	172	134
Oats	3,968	3,486	3,234	12,401	10,892	10,107	114	123

(1) May 1 forecasts.

Among vines the growth of clusters was satisfactory. Mildew is reported locally and if the moist weather continues a severe attack is feared.

The blossoming of olives was very abundant but took place in bad conditions and shedding was feared. If weather conditions should improve a good crop was anticipated.

Germany: The area re-ploughed owing to winter and other damage in 1939 was for winter rye 89,000 acres, or 9.0 per cent. of the sown area, against 16,300 or 0.1 per cent., in 1938, and an average of 110,100, or 1.0 per cent. in 1931-1936; for winter wheat corresponding figures are 371,000, or 8.0 per cent., against 9,800, or 0.2 per cent., and an average of 97,600 or 2.2 per cent.; for winter barley 331,000 or 25.0 per cent., against 600, or 0.1 per cent. and 9,200 or 4 per cent.; for clover mixtures 293,000, or 8.0 per cent., against 17,100, or 0.5 per cent. and 99,600 or 2.2 per cent.; alfalfa 25,000, or 2.5 per cent., against 2,300, or 0.3 per cent. and 18,700 or 2.5 per cent.

Hungary: The last decade of April was dry and cool, while the first decade of May was wet and warm. Precipitation was above average. Weather conditions on the whole were favourable for crops.

On May 10 the crop condition of winter wheat was good in most parts, while that of winter rye varied from average to good. Winter barley had a good appearance at this date. Spring cereal sowings were slightly affected by drought in April but following the rains in May were growing rapidly.

On May 10 the sowing of maize was finished. Early sown crops rose well and the first hoeing was in progress. Rain in May considerably stimulated late sown crops.

The planting of potatoes on May 10 was finished. Early potatoes sprouted well and were growing strongly following the rains in May. The first hoeing was in progress in nearly all districts. At the same date main season potatoes were beginning to grow or were in process of germination.

The condition of vines is satisfactory on the whole. The damage done by spring frost is slight.

Mangels did not germinate evenly. Following the rain, clover and alfalfa were growing very rapidly. The first cutting was in progress and yields were above normal. Vetch and rye mixtures for fodder were growing well on May 10. The sowing of maize for fodder and of mohar was in progress. The growth of permanent meadows and pastures was vigorous following the rain.

Portugal: The condition of cereals improved considerably as a result of rain in the second half of April and, although there have been complaints of frosts in a number of areas, the crop will be good if the east winds which normally blow at this period do not damage the plants. Spring seeding was generally finished in good conditions.

Frost slightly damaged vines.

Fodder crops have not been much affected by the variable weather of April and crops are considered fairly abundant.

Romania: Cereals. — On May 20 wheat and cereals generally were growing normally. Maize. — Sowing of maize was finished in good conditions. The weather is favourable for growth.

Dott. VALENTINO DORE, *gerente responsabile.*

MONTHLY CROP REPORT AND AGRICULTURAL STATISTICS

The following explanations refer to crop conditions quoted in the crop notes and in the tables. — Crop condition according to the system of the country: Germany, Hungary, Luxemburg and Czecho-Slovakia: 1 = excellent, 2 = good, 3 = average, 4 = bad, 5 = very bad; Finland: 8 = very good, 6 = above the average, 5 = average; France: 100 = excellent, 70 = good, 60 = fairly good, 50 = average, 30 = bad; Estonia, Latvia, Lithuania, Poland, Romania and Sweden: 5 = excellent, 4 = good, 3 = average, 2 = bad, 1 = very bad; Netherlands: 90 = excellent, 70 = good, 60 = fairly good, 50 = below average; Portugal: 100 = excellent, 80 = good, 60 = average, 40 = bad, 20 = very bad; Switzerland: 100 = excellent, 90 = very good, 75 = good, 60 = fairly good, 50 = average, 40 = rather bad, 30 = bad, 10 = very bad; U. S. S. R.: 5 = good, 4 = above the average, 3 = average, 2 = below average, 1 = bad; Canada: 100 = crop condition promising a yield equivalent to the average yield of a long series of years; United States: 100 = crop condition which promises a normal yield; Egypt: 100 = crop condition which promises a yield equal to the average yield of the last five years. — For other countries the system of the Institute is employed: 100 = crop condition which promises a yield equal to the average of the last ten years.

See latest information at the end of the Crop Report.

VEGETAL PRODUCTION

The World Wheat Trade in 1938-39 and 1939 Wheat Crop Prospects.

International trade in wheat during April 1939, the latest month for which official statistics of exports and imports are available, showed the usual seasonal decline compared with the first quarter of the year. This year, however, the decline in world exports in April has been much less marked than usual, first because the export of the Argentine crop, which had been extremely small in January to March, rose sharply in April, and secondly because the Danube countries, especially Hungary and Romania, in April accelerated the disposal of their exportable supplies after a diminution in March.

From August to April, or during three quarters of the present season, world net exports totalled 447 million bushels, an increase of 42 millions, or 10 per cent, on last year. Last March we forecast world import requirements of the whole season at 570 million bushels; the actual exports of the first nine months of the present season give reason to believe that this forecast will be practically realized. The considerable drop in wheat prices in the spring, by stimulating demand and facilitating the building up of reserve stocks, will enable exports to be maintained at a higher level than usual and to remain in the last few months of the season at the level of the preceding months, instead of the usual seasonal decline towards the end of the season. In that case the total of world exports in 1938-39 might exceed by 15-20 million bushels our March forecast.

*World net Exports of Wheat (including flour in terms of wheat). **
(million bushels)

EXPORTS BY MONTHS				EXPORTS BY COUNTRIES			
Months	1938-39	1937-38	1936-37	Exporting Countries	Nine months: August-April		
					1938-39	1937-38	1936-37
August	54	38	47	Canada (2)	118	71	169
September	47	38	52	United States (2) . .	75	78	(5) + (21)
October	57	48	52	Argentina	68	53	145
November	48	49	56	Australia	69	88	69
December	43	44	53	Total four countries .	330	290	383
January	52	48	63	Romania	33	29	32
February	48	46	61	Hungary	23	8	22
March	50	50	62	Other Europ. count. (3)	8	11	26
April	48	44	47	North Africa	8	12	6
May . . . . .	...	40	42	India (5) +	(1)	11	10
June . . . . .	...	44	40	U. S. S. R.	38	39	3
July . . . . .	...	46	29	Other countries (4) .	7	5	11
Total August-April . .	447	405	493	Total other countries .	117	115	109
Total Year	(1) 570	535	604	General Total	447	405	493

* Aggregate net exports of the normal exporting countries (possible net imports into certain of these countries are not deducted from the totals).

(1) Forecast March 1939. — (2) Net exports adjusted in accordance with the monthly variations in stocks of Canadian wheat in the United States and stocks of United States wheat in Canada. — (3) Bulgaria, Lithuania, Poland and Yugoslavia. — (4) Iran, Iraq, Turkey, Chile and Uruguay. — (5) Net imports.

The estimates of the exportable supplies of the various exporting countries have not undergone any modification worth noting and their total for the present season remains the same as that published last month. Deducting from these surpluses the export figures of August to April, the remaining exportable surplus on May 1, 1939 in exporting countries amounted to about 700 million bushels, which is an extremely high total and well over double the amount on May 1, 1938. It is thus confirmed that the stocks of exporting countries to be carried over to the 1939-40 season will be very heavy and will approach, though not fully reach, the maximums of the period 1929 to 1934.

On May 1 about a half of the exportable balance was centred in North America (United States 32 per cent. and Canada 18 per cent.), 27 per cent. in Argentina, 13 per cent. in the Danube countries, 8 per cent. in Australia and the remainder in the other minor exporting countries. In all the chief exporting countries except Australia supplies on May 1, 1939 were much larger than on May 1, 1938. Surplus stocks in Argentina and in the Danube group of exporting countries were exceptionally large.

In regard to the importing countries the net wheat imports of Europe showed a heavy fall in April compared with the average monthly imports of this season

*Exportable Supplies of Wheat on May 1, 1939.*¹

(million bushels)

COUNTRIES	Year 1937-38			Year 1938-39		
	Total exportable supplies	Net exports from August 1 to April 30	Remainder on May 1 1938	Total exportable supplies	Net exports from August 1 to April 30	Remainder on May 1 1939
Canada	88	71	17	246	118	128
United States	179	78	101	301	75	226
Argentina	102	53	49	258	68	190
Australia	160	88	72	128	69	59
U. S. S. R.	43	39	4	38	(2) 38	0
European exporting countries . . .	58	48	10	154	65	89
North Africa, India and others . .	41	28	13	26	14	12
<i>Total . . .</i>	<i>671</i>	<i>405</i>	<i>266</i>	<i>1,151</i>	<i>447</i>	<i>704</i>

(1) Supplies afloat excluded. — (2) Partly estimated.

*Net Imports of Wheat into Europe (including flour in terms of wheat) *.*

(million bushels).

IMPORTS BY MONTHS				IMPORTS BY COUNTRIES			
Months	1938-39	1937-38	1936-37	Importing Countries	Nine months: August-April		
					1938-39	1937-38	1936-37
August	40	35	25	United Kingdom . .	159	139	150
September	36	29	29	Ireland	13	10	9
October	42	33	32	<i>Total . . .</i>	<i>172</i>	<i>149</i>	<i>159</i>
November	39	34	33	Belgium	25	28	31
December	32	33	36	Netherlands	22	18	17
January	24	28	25	Germany and Austria	39	38	10
February	30	32	37	France	0	12	6
March	40	35	43	Switzerland	13	11	14
April	27	33	39	Greece	7	12	17
May . . . . .	...	34	49	Italy	6	2	32
June . . . . .	...	37	49	Scand. & Baltic States (6)	14	12	14
July . . . . .	...	40	41	Other countries (7) .	12	10	8) (1)
<i>Total August-April . .</i>	<i>310</i> (2)	<i>292</i> (4)	<i>299</i>	<i>Total Continent . . .</i>	<i>138</i> (2)	<i>143</i> (4)	<i>140</i>
<i>Total Year</i>	(1) <i>430</i> (3)	<i>403</i> (5)	<i>438</i>	<i>Total Europe</i>	<i>310</i> (2)	<i>292</i> (4)	<i>299</i>

* Aggregate net imports of normal importing countries, after deduction of exports, if any.

(1) Forecast March 1939. — (2) After deduction of net exports of 1 million bushels from Sweden and of 1 million bushels of net exports from Czecho-Slovakia. — (3) After deduction of net exports of 0.7 million bushels from Sweden. — (4) After deduction of net exports of 6 million bushels from Czecho-Slovakia. — (5) After deduction of net exports of 9 million bushels from Czecho-Slovakia. — (6) Denmark, Estonia, Finland, Latvia, Norway and Sweden. — (7) Czecho-Slovakia, Spain, Portugal, Albania, Malta, etc. — (8) Total after deduction of net exports.

and with April 1938. This sharp drop was due essentially to the United Kingdom, which only imported 12 million bushels in April 1939 against 26 millions the previous month and 14 millions in April 1938.

Ireland, however, showed a considerable increase in imports in April with 2.5 million bushels against an average of 1.3 millions in the preceding eight months. The aggregate imports of the British Isles from August to April show an increase of 23 million bushels on the corresponding period of the preceding season. On the other hand, the Continental countries imported on the whole 5 million bushels less than last year. For Europe as a whole we have forecast for the whole season requirements of 430 million bushels, of which only 310 millions have already been imported in the first nine months. The imports of the last three months would therefore have to average 40 million bushels, a considerable increase on the 34 millions imported monthly from August to April. In view of the heavy shipments to Europe in May and the first half of June there is reason to believe that the imports of the last quarter will be very close to the high level anticipated.

The imports of the extra-European countries continued at a very much higher level than last year owing to the heavy demand of the Far Eastern countries and of Central and South America.

1939 Crop Prospects.

From reports received by the Institute up to June 20, the following indications of wheat crop prospects in the Northern Hemisphere may be given.

In Europe the weather was very variable in May in different parts of the continent. In the north it was mostly fairly sunny and warm; in the centre it was irregular with sudden changes of temperature; and in southern Europe it was abnormally cold, wet and stormy. On the whole during May crop condition mostly improved very slightly in the north and centre and deteriorated fairly considerably in the south, where, however, crops were still more or less satisfactory, in spite of the damage done by excessive rain and frequent, severe storms.

In the first half of June the weather was more favourable in almost all parts. Although there was frequent rain with occasional storms, seasonal conditions became more normal with fine, sunny days and a steadily rising temperature. There was no excessive heat or waves of scirocco, which in the Mediterranean region might have done serious damage owing to the general lateness of growth after an abnormally cold May. The absence of great heat also checked the spread of rust, which made an appearance in many districts following the excessively wet May and early June in Italy and in the Danube and Balkan countries. Owing to the lateness of crops after the cold spring, the harvest will begin one or two weeks late in most of the countries which normally begin harvesting in June. At mid-June crop condition generally was fairly considerably better than at the beginning of the month. Crop prospects, in spite of the great uncertainty caused by the lateness of crops, seem to indicate a more or less average outturn for the continent as a whole.

For a number of years we have attempted at this time of year to give a numerical forecast of the European wheat crop, on the basis of the areas under cultivation in the different countries and the probable unit-yields as indicated by crop condition, assuming, of course, that weather conditions between mid-June and the end of the harvest are normal. Clearly, such a forecast may be very far from the actual results, due not only to errors of judgment on the actual condition of crops but also to weather conditions in the coming weeks, which may have a decisive influence on the size of the crop. We believe, however, that such a forecast may be useful. It gives a first indication of the world wheat market situation in the coming 1939-40 season. We publish it below with due reserve and may revise the figures next month, when crop prospects are more definite. The forecast puts the production of the importing countries of Europe at 1,140 million bushels and that of the six exporting countries (four Danube countries, Poland and Lithuania) at 500 millions, giving a total crop for Europe as a whole (excluding the U. S. S. R.) of 1,640 million bushels.

European Wheat Production Estimates.

(million bushels)

Years	Importing countries	Four Danube countries, Poland and Lithuania	Total Europe
1939 (forecast)	1,140	500	1,640
1938 (final)	1,288	553	1,841
1937 "	1,109	440	1,550
1936 "	1,010	471	1,481
1935 "	1,189	386	1,575
1934 "	1,212	330	1,548
1933 "	1,289	456	1,745
1933-1937 (average)	1,162	418	1,580
1928-1932 "	1,030	399	1,429
1923-1927 "	921	323	1,244

According to this forecast, the 1939 wheat crop in Europe as a whole would be definitely (about 11 per cent.) smaller than the exceptionally large crop of last year but would still be one of the largest crops of post-War years, being in fact only exceeded by those of 1933 and 1938. The position of the crop, however, is rather different according to the separate groups of importing and exporting countries. It is found that the aggregate production of the former would be about average (1,140 million bushels against an average of 1,160 millions in 1933 to 1937) while that of the six exporting countries would be extremely large and well above the previous five-year average ((500 million bushels against 420 millions in 1933-1937).

In the Soviet Union, weather conditions in May and the first half of June were on the whole favourable. The rainfall of the second half of the spring was on the whole abundant and fairly well distributed. This rainfall is of importance both for winter cereals, which are already approaching maturation, and for the

growth of spring cereals, the late sowings of which were completed at the beginning of June. In some parts of the southeast and particularly in the Volga basin drought persisted in May and the light, scattered rain that fell in the first half of June was not sufficient for the growth of crops which were in great need of heavy rain. At mid-June winter wheat and rye which had not been affected by the winter and spring frosts had a good appearance and promised good yields particularly in Ukraina and in North Caucasus. Spring wheat production, which constitutes nearly two-thirds of the total wheat crop of the Union, still remains entirely dependent on weather conditions and particularly the rainfall from mid-June to mid-July, which is the most important factor in determining good crops. An important fact to note is that on June 10 soil moisture reserves were still considerable. On the whole, prospects at present are for a large crop. The fact that on the London market offers of new crop Soviet wheat are beginning to be made seems to confirm the optimism which prevails in regard to the coming harvest.

In North America, winter wheat crop prospects in the United States slightly fell off during May and the June 1 estimate showed a decrease of about 4 per cent. compared with the preceding month. The forecast production of 523 million bushels is much lower (24 per cent.) than the excellent crop of last year and is only slightly (5 per cent.) above the low average of the five preceding years. The weather of the first three weeks of June was favourable for the maturation of winter wheat and harvesting has already begun in some districts although it was interrupted in some cases by rain. Some attacks of rust are reported, but it does not seem that any serious damage has been done so far. It is anticipated that the July 1 estimate will show a fairly considerable advance on the June 1 figure. Spring wheat, the crop condition of which was not satisfactory on June 1 owing to drought in May, benefited in the first three weeks of June from frequent and widespread rains in the principal producing areas. Crop condition has greatly improved and prospects are satisfactory. If damage in the later stages does not overthrow present expectations, the aggregate wheat production of 1939 should be largely sufficient to supply the internal requirements of the United States.

The first stages of growth of spring wheat in Canada were hampered by the drought of the first two decades of May and crops only began to improve from the third decade on with the arrival of general rains in the Prairie Provinces. Wheat crop condition on June 1, though satisfactory, was not so good as a year earlier. In the first three weeks of June the season was definitely favourable, with rather low temperatures and heavy, frequent and widespread rain. Crops made excellent progress and were only in need of a slight rise in temperature and more sunshine. If there is further occasional rain in July and if the still very doubtful menaces of rust and grasshoppers are not realized, Canada may expect a definitely good crop, clearly exceeding the already large crop of last year, which reached 350 million bushels.

In regard to Asia, we have already published last month the second estimate of production in India, which is large. Chosen and Palestine this month sent their crop estimates, which in both cases are very high. In Japan the condition of

crops, following favourable weather, promises high yields. In the Near East, crop prospects are good both in Turkey and in Syria.

In North Africa, the provisional estimates of the three countries of the French zone indicate a total production of 102 million bushels, an increase of about 40 per cent. both on last year and the five-year average. These three countries also anticipate an exceptionally large barley crop. In Egypt harvesting is nearly completed and results are very satisfactory.

Summarizing reports at mid-June on the probable wheat crop in the Northern Hemisphere, it may be said that wheat production in 1939 is definitely smaller than the large crop of 1938 but is well above the average of 1933 to 1937. If crops maintain their present promise the total production of the Northern Hemisphere (excluding the U. S. S. R. and China) may reach 3,530 million bushels, or about 10 per cent. less than last year, but still 11 per cent. more than the average of 1933 to 1937.

In regard to sowings in the Southern Hemisphere, it is confirmed that seeding in Argentina, somewhat delayed by drought in some areas, progressed in favourable soil and weather conditions in June. The situation is also favourable in Australia, where rain this month has been frequent and general, ensuring a good germination. A slight reduction in the sown area both in Argentina and in Australia is anticipated.

G. CAPONE.

Current information from various countries on Wheat, Rye, Barley and Oats.

Europe.

Germany: The crop condition of cereals was good on the whole at the beginning of June, except for winter barley, which was damaged during the winter. Spring cereals were also in fairly good condition.

Belgium: The weather in the second half of May was fine and dry. Drying winds from the northeast and east did some harm. Crop condition is generally good; winter wheat, resown in February, is naturally rather retarded. Spring cereals are in good condition.

According to the most recent estimate the area cultivated to spelt this year is about 23,100 acres against 24,500 in 1938 and 32,100 on the average of the five years ending 1937; percentages 96.6 and 72.1.

Bohemia-Moravia (Protectorate). — Except in the second half of December, when the temperature fell to 4° below zero F., the winter was generally mild and dry. In March there was cold, wet weather and in April mild and comparatively dry weather. Spring cereals, the sowing of which had been retarded by the cold, wet weather of March, improved during the mild weather of April, and on May 1 crop condition was good.

Winter cereals were considerably damaged in some areas, especially late-sown crops, and in some districts they have been replaced by other crops. Thanks, however, to the fine weather of April, the crop condition of winter cereals improved considerably and at the beginning of May was good.

Bulgaria: The weather in May was fine on the whole and rather wet. The average temperature was normal. As a result of the rain and adequate warmth winter

Area and Crop Condition of Wheat, Rye and Meslin.

COUNTRIES	AREA						CROP CONDITION †)											
	1939	1938	Average 1933 to 1937	% 1939			I-VI-1939			I-V-1939			I-VI-1938					
				1938 = 100	Aver. = 100		(a)	(b)	(c)	(a)	(b)	(c)	(a)	(b)	(c)			
																Thousand acres		
WHEAT																		
Germany . . . (w)	4,714	4,577	4,866	103.0	96.9	} 2.9	—	—	—	—	3.0	—	{ 2.5 2.2 2.6 2.3	—	—	—	—	
*Austria . . . (w)	...	578	560													
*Germany . . . (s)	...	472	577	...	...	} 2.7	—	—	—	—	—	—	{ 2.6 2.3	—	—	—	—
*Austria . . . (s)	...	+1	32													
Belgium . . .	354	430	399	82.4	88.6	(e)	—	—	—	—	—	—	(e)	—	—	—	—	
*Bohemia and Mo- ravia (Protect.)	918	923	—	99.5	—	—	—	—	—	—	w) 3.1	—	—	—	—	—	—	
Bulgaria . . . (w)	3,025	2,874	2,961	105.3	102.2	—	—	—	—	—	—	—	—	—	—	—	—	
*Estonia . . .	...	68	51	...	...	—	—	—	75	—	—	—	—	—	—	—	86
France (1) . . (w)	12,249	12,353	12,790	99.2	95.8	—	—	—	—	—	—	—	—	—	—	—	—	
Greece . . .	2,305	2,062	1,989	111.8	115.9	—	—	—	—	—	—	—	—	—	—	—	—	
Hungary . . .	4,604	4,000	3,910	115.1	117.7	—	—	—	—	—	—	—	—	—	—	—	—	
Italy . . . {(w)}	12,635	12,151	12,364	104.0	102.2	—	—	—	—	—	—	—	—	—	—	—	—	
. . . {(s)}	206	380	249	54.2	82.8	—	—	—	—	—	—	—	—	—	—	—	—	
Latvia . . . (w)	180	167	184	108.0	98.1	—	—	(2) 2.7	3.4	—	—	—	—	—	—	(2) 2.9	—	
Lithuania . . (w)	358	356	389	100.8	92.2	103	—	—	—	100	—	—	107	—	—	—	—	
Luxembourg . .	53	57	41	93.7	128.6	—	—	3.3	—	—	3.5	2.1	—	—	—	—	—	
*Netherlands . {(w)}	...	276	301	...	...	—	—	(3) 60	—	—	(2) 50	(3) 74	—	—	—	—	—
. . . {(s)}	...	45	54	...	...	—	—	(3) 66	—	—	—	—	(3) 71	—	—	—	—
Poland . . . {(w)}	3,835	3,794	3,719	101.1	103.1	3.6	—	—	—	—	—	—	3.7	—	—	—	—	
. . . {(*s)}	...	541	560	...	...	3.3	—	—	—	—	—	—	3.2	—	—	—	—
Romania . . .	9,856	9,435	8,213	104.5	120.0	—	—	—	—	—	—	—	—	—	—	—	—	
United Kingdom:																		
Engl. and Wales	1,664	1,807	1,726	92.1	96.4	—	—	—	—	—	—	—	—	—	—	—	—	
Scotland . . .	79	92	94	85.4	83.9	—	(f)	—	—	—	—	—	—	(f)	—	—	—	
*Sweden . . . (w)	...	589	545	...	...	3.4	—	—	—	—	—	—	3.2	—	—	—	—
*Switzerland . (w)	...	151	142	...	...	81	—	—	—	84	—	—	76	—	—	—	—
Yugoslavia . . (w)	5,236	5,335	5,282	98.1	99.1	—	—	—	—	—	—	—	—	—	—	—	—	
Total Europe . .	61,353	59,870	59,176	102.5	103.7	—	—	—	—	—	—	—	—	—	—	—	—	
Canada . . . {(w)}	657	742	554	88.5	118.7	—	—	98	—	—	98	—	—	—	—	96	—	
. . . {(s)}	(4) 25,336	25,188	24,500	100.6	103.4	—	—	94	—	—	—	—	—	—	—	99	—	
United States . .	(w) 38,936	49,711	36,595	78.3	106.4	—	—	—	—	—	—	—	—	—	—	—	—	
. . . {(s)}	(4) 19,505	23,515	22,507	82.9	86.7	—	—	71	—	—	—	—	87	—	—	—	—	
Total America . .	84,434	99,156	84,156	85.2	100.3	—	—	—	—	—	—	—	—	—	—	—	—	
India (s)	32,999	33,722	33,676	97.9	98.0	—	—	—	—	—	—	—	—	—	—	—	—	
*Japan . . . . .	...	1,777	1,637	...	...	—	(f)	—	—	—	(f)	—	—	—	(f)	—	—
Palestine	500	441	515	113.4	97.0	—	—	—	—	—	—	—	—	—	—	—	—	
Total Asia	33,499	34,163	34,191	98.1	98.0	—	—	—	—	—	—	—	—	—	—	—	—	
Algeria	4,040	4,101	4,151	98.5	97.3	—	—	—	—	—	—	—	—	—	—	—	—	
Egypt	1,503	1,470	1,443	102.2	104.1	106	—	—	—	106	—	—	110	—	—	—	—	
French Morocco .	3,188	2,999	3,213	106.3	99.2	—	—	—	—	—	—	—	—	—	—	—	—	
Tunisia	2,104	1,667	1,876	126.2	112.2	—	—	—	—	—	—	—	—	—	—	—	—	
Total Africa . . .	10,835	10,237	10,683	105.8	101.4	—	—	—	—	—	—	—	—	—	—	—	—	
GRAND TOTAL . .	190,121	203,426	188,206	93.5	101.0	—	—	—	—	—	—	—	—	—	—	—	—	

COUNTRIES	AREA					CROP CONDITION †)											
	1939	1938	Average 1933 to 1937	% 1939		I-VI-1939			I-V-1939			I-VI-1938					
				1938 = 100	Aver. = 100	(a)	(b)	(c)	(a)	(b)	(c)	(a)	(b)	(c)			
															Thousand acres		
RYE																	
Germany. . . (w)	10,186	10,410	11,009	97.8	92.5	} 2.5	—	—	2.6	—	—	{ 2.6	—	—			
*Austria . . . (w)	...	863	890	...	...		} 2.7	—		—	—		—	—	{ 2.2	—	—
*Germany . . . (s)	...	145	156	...	...			(c)		—			—	—		—	—
*Austria . . . (s)	...	41	40	...	...	} 2.4			—	—		—	—			—	{ 2.4
Belgium	364	381	409	95.5	88.9		} 2.1		—	—	110		—		—	{ 2.2	
*Bohemia and Mo- ravia (Protect.)	1,204	1,230	—	97.9	—			} 3.6	—	—			2.3	—	—		
Bulgaria . . . (w)	423	436	449	97.1	94.2	} 2.1			—	—		2.3		—	—		{ 2.2
*Estonia . . . .	...	365	360	...	...		} 3.6		—	—	2.3			—	—	{ 2.2	
France (1) . . . (w)	1,604	1,621	1,671	98.9	96.0			} 3.6	—	—			2.3	—	—		
Greece	152	171	175	88.9	86.4	} 3.6			—	—		2.3		—	—		{ 2.2
Hungary	1,730	1,562	1,581	110.7	109.4		} 3.6		—	—	2.3			—	—	{ 2.2	
Latvia (w)	724	703	654	103.0	110.7			} 3.6	—	—			2.3	—	—		
Lithuania . . . (w)	1,221	1,296	1,227	94.2	99.5	} 3.6			—	—		2.3		—	—		{ 2.2
Luxemburg . . .	18	18	19	99.2	94.6		} 3.6		—	—	2.3			—	—	{ 2.2	
*Netherlands . .	...	585	501	...	...			} 3.6	—	—			2.3	—	—		
Poland (w)	14,689	14,510	14,165	101.2	103.7	} 3.6			—	—		2.3		—	—		{ 2.2
Poland (s)	...	57	62	...	...		} 3.6		—	—	2.3			—	—	{ 2.2	
Romania	1,188	1,190	991	99.8	119.9			} 3.6	—	—			2.3	—	—		
*Sweden (w)	...	475	529	...	...	} 3.6			—	—		2.3		—	—		{ 2.2
*Switzerland . . (w)	...	34	36	...	...		} 3.6		—	—	2.3			—	—	{ 2.2	
*Yugoslavia . . (w)	533	549	539	97.1	98.8			} 3.6	—	—			2.3	—	—		
Total Europe . . .	32,832	32,847	32,889	99.9	99.8	} 3.6			—	—		2.3		—	—		{ 2.2
Canada (w)	573	553	541	103.5	105.9		} 3.6		—	—	2.3			—	—	{ 2.2	
United States . . . (s) 4)	182	188	160	96.9	113.5			} 3.6	—	—			2.3	—	—		
United States . . .	4,079	3,979	3,043	102.5	134.1	} 3.6			—	—		2.3		—	—		{ 2.2
Total America . . .	4,834	4,720	3,744	102.5	129.2		} 3.6		—	—	2.3			—	—	{ 2.2	
Algeria	6	5	3	120.3	177.7			} 3.6	—	—			2.3	—	—		
GRAND TOTAL . . .	37,672	37,572	36,636	100.3	102.8	} 3.6			—	—		2.3		—	—		{ 2.2
MESLIN																	
Belgium	4	4	8	87.4	48.5		(e)	—	—	—	—		—	(e)	—	—	
Bohemia and Mo- ravia (Protect.)	9	9	—	101.1	—	} 2.7		—	—		2.9	—	—		{ 2.2	—	—
Bulgaria	196	203	206	96.7	95.1			} 2.7	—			—	2.9			—	—
France (1)	162	162	169	99.9	96.0		} 2.7		—	—		2.9		—		—	{ 2.2
Greece	148	146	136	101.3	108.9	} 2.7			—	—	2.9			—	—	{ 2.2	
Lithuania . . . .	...	277	260	...	...			} 2.7	—	—			2.9	—	—		
Luxemburg	4	4	6	95.8	61.9		} 2.7		—	—		2.9		—	—		{ 2.2
Switzerland . . .	...	18	17	...	...	} 2.7			—	—	2.9			—	—	{ 2.2	
Yugoslavia	143	137	133	104.0	107.2			} 2.7	—	—			2.9	—	—		
Canada (4)	1,173	1,159	1,156	101.2	101.5		} 2.7		—	—		2.9		—	—		{ 2.2

†) See explanation according to the various systems, page 515. — * Countries not included in the totals. — (a) Above the average. — (b) Average. — (c) Below the average. — (d) Very good. — (e) Good. — (f) Average. — (g) Bad. — (h) Very bad. — (w) Winter crop. — (s) Spring crop. — (1) Acreage sown up to January 1. — 2) Middle of the previous month. — (3) Middle of the month. — (4) Intentions to plant. — (5) Fourth estimate

crops were of very good appearance at the beginning of June. The sowing of spring cereals was carried out in very favourable conditions.

The preliminary estimates of the General Statistical Department of Bulgaria for the 1939 crop of winter cereals compared with that of 1938 and the average of the years 1933 to 1937 are as follows:—

	1939	1938	Average 1933-1937	% 1939 1938 = 100	Average = 100
	(thousand centals)				
Wheat	42,589	38,425	32,010	110.8	133.0
Rye	5,186	5,171	4,495	100.3	115.4
Barley	7,228	6,524	5,744	110.8	125.8
Meslin	2,578	2,699	2,359	95.5	109.3
Spelt	257	278 (1)	312	92.6	82.6
	(thousand bushels)				
Wheat	70,980	64,041	53,349	110.8	133.0
Rye	9,261	9,234	8,026	100.3	115.4
Barley	15,059	13,592	11,967	110.8	125.8
Meslin	4,445	4,654	4,067	95.5	109.3
Spelt (ooo lb.)	25,730	27,776 (1)	31,157	92.6	82.6

(1) Year 1937.

France: The first two decades of May were cold and particularly wet, with almost daily rainfall. In the last decade the temperature was high with a stormy sky and a strong north wind, which dried the ground excessively.

The condition of winter wheat is definitely not so good as at the end of April. Weeds have developed very rapidly while wheat has been retarded in growth by the cold weather. Rain has not enabled hoeing and weed-killing to be carried out successfully. Moreover rain encouraged the spread of rust, which is reported in all low-lying and clayey lands. In regard to alternative or spring wheat, crops may be divided into two categories: wheat sown in January is vigorous and fairly dense and clean; that sown later after the second period of frost is thin and weed infested.

Rye has a very satisfactory appearance. Flowering and fructification took place in good conditions. Oats and barley germinated well but are infested by weeds. It is reported that the area sown to barley is rather higher than the average of previous years, since many farmers have turned over their wheat fields destroyed by the frost to this crop.

Finland: The temperature in May was considerably higher than normal. There was little precipitation during the month, and the rain that fell was very unevenly distributed. Crops came through the winter in poor condition. Spring sowing took place in normal conditions.

Greece: After a rather long period of fine and dry weather, rain at the end of May and in the first ten days of June damaged cereals particularly on the plains, causing lodging or interrupting the harvest, which had begun. In mountain districts the wet weather rather favoured the growth of cereals. At the end of the first decade of June, when the fine weather returned, the condition of cereals was as follows. In Central Macedonia, Epirus and Thessaly, in spite of rather serious damage done by the bad weather, a larger crop of cereals than last year is forecast. In Thrace and the Peloponnesus production is reported to be about equal to last years'. In Euboea, Crete and the islands of the Aegean, particularly Lesbos, the production of cereals is forecast as generally lower than last year.

Area and Crop Condition of Barley and Oats.

COUNTRIES	AREA					CROP CONDITION †								
	1939	1938	Average 1933 to 1937	% 1939		I-VI-1939			I-V-1939			I-VI-1938		
				1938 = 100	Aver. = 100	(a)	(b)	(c)	(a)	(b)	(c)	(a)	(b)	(c)
			Thousand acres											
BARLEY														
Germany . . . (w)	1,347	1,279	937	105.3	143.8	—	—	3.4	—	—	3.5	2.7	—	—
* Austria . . . (w)	...	23	21	...	...	—	—	—	—	—	—	2.2	—	—
* Germany . . . (s)	...	2,857	3,130	...	...	2.6	—	—	—	—	—	2.6	—	—
* Austria . . . (s)	...	393	390	...	...	—	—	—	—	—	—	2.2	—	—
Belgium . . .	48	76	85	62.9	56.9	—	(f)	—	—	—	—	(e)	—	—
* Bohemia and Mo- ravia (Protect.) .	644	638	—	101.0	—	—	—	—	—	—	—	—	—	—
Bulgaria . . . (w)	461	431	445	106.8	103.5	—	—	—	—	—	—	—	—	—
France (r) . . . (w)	503	475	448	106.0	112.3	—	—	—	—	—	—	—	—	—
Greece . . .	51	12	525	100.4	97.9	—	—	—	—	—	—	—	—	—
* Lithuania . . .	1th. The	516	...	...	110	—	—	—	—	—	—	—	100	—
Luxemburg . . .	...	6	104.2	82.7	2.4	—	—	—	2.5	—	—	2.4	—	—
* Netherlands . .	...	33	...	...	...	—	—	(2) 50	—	(3) 39	—	(2) 73	—	—
Poland . . .	...	57	...	...	...	—	—	(2) 66	—	—	—	(2) 74	—	—
Romania . . .	...	69	103.8	74.8	—	3.3	—	—	—	—	—	3.2	—	—
United Kingdom:	...	3,158	4,123	80.7	61.8	—	—	—	—	—	—	—	—	—
Scotland . . .	103	99	77	104.1	133.6	—	—	—	—	—	—	—	—	—
* Switzerland . . (w)	...	3	7	...	...	83	—	—	85	—	—	76	—	—
Yugoslavia . . . (w)	564	595	601	94.9	94.0	—	—	—	—	—	—	—	—	—
Total Europe . .	6,145	6,680	7,316	91.9	84.0	—	—	—	—	—	—	—	—	—
Canada	(+) 4,521	4,454	3,985	101.5	113.4	—	—	93	101	—	—	—	—	96
United States . .	(4) 13,219	11,334	12,322	116.6	107.3	—	—	72	—	—	—	87	—	—
Total America . .	17,740	15,788	16,307	112.4	108.8	—	—	—	—	—	—	—	—	—
* Japan . . . . .	...	1,892	1,894	...	...	—	(f)	—	—	(f)	—	—	(f)	—
Palestine	509	502	568	101.4	89.7	—	—	—	—	—	—	—	—	—
—														
Algeria	3,039	2,909	3,180	104.5	95.6	—	—	—	—	—	—	—	—	—
Egypt	272	274	284	99.3	95.7	104	—	—	104	—	—	109	—	—
French Morocco .	4,720	4,155	4,160	113.6	113.5	—	—	—	—	—	—	—	—	—
Tunisia	1,483	736	1,149	196.0	129.0	—	—	—	—	—	—	—	—	—
Total Africa . .	9,514	8,094	8,773	117.6	108.5	—	—	—	—	—	—	—	—	—
GRAND TOTAL . .	33,908	31,064	32,964	109.2	102.9	—	—	—	—	—	—	—	—	—
OATS														
* Germany . . . .	...	6,666	7,290	...	...	2.7	—	—	—	—	—	2.8	—	—
* Austria . . . .	...	710	732	...	...	—	—	—	—	—	—	2.3	—	—
Belgium	603	527	571	114.5	105.7	(e)	—	—	—	—	—	(e)	—	—
* Bohemia and Mo- ravia (Protect.) .	894	904	—	98.9	—	—	—	—	—	—	—	—	—	—
Bulgaria	274	286	316	96.0	86.8	—	—	—	—	—	—	—	—	—
France (r) . . . (w)	2,274	2,233	2,110	101.8	107.8	—	—	—	—	—	—	—	—	—
Greece	371	358	340	103.6	109.3	—	—	—	—	—	—	—	—	—
* Lithuania . . .	...	878	854	...	...	110	—	—	—	—	—	—	100	—
Luxemburg . . .	62	61	66	100.8	93.9	2.2	—	—	2.3	—	—	2.3	—	—
* Netherlands . .	...	361	334	...	...	—	—	(2) 64	—	—	—	(2) 74	—	—
* Poland . . . . .	...	5,627	5,535	...	...	3.3	—	—	—	—	—	3.1	—	—
Romania	1,359	1,609	1,998	84.5	68.0	—	—	—	—	—	—	—	—	—

COUNTRIES	AREA					CROP CONDITION †								
	1939	1938	Average 1933 to 1937	% 1939		1-VI-1939			1-V-1939			1-VI-1938		
				1938	Aver. = 100									
				Thousand acres	= 100	(a)	(b)	(c)	(a)	(b)	(c)	(a)	(b)	(c)
United Kingdom:														
Scotland	795	798	829	99.7	95.9	—	—	—	—	—	—	—	—	—
*Switzerland . . . . .	...	28	29	...	...	78	—	—	81	—	—	72	—	—
Total America	48,094	49,625	52,612	96.9	91.4	—	—	—	—	—	—	—	—	—
Canada	(4)12,701	13,010	13,538	97.6	93.8	—	—	93	—	—	98	—	—	97
United States	(4)35,393	36,615	39,074	96.7	90.6	—	—	72	—	—	—	87	—	—
Total Europe	5,738	5,872	6,230	97.7	92.1	—	—	—	—	—	—	—	—	—
Algeria	494	451	457	109.6	108.1	—	—	—	—	—	—	—	—	—
French Morocco	131	120	80	109.3	163.5	—	—	—	—	—	—	—	—	—
Tunisia	99	99	71	99.8	140.2	—	—	—	—	—	—	—	—	—
Total Africa	724	670	608	108.5	119.1	—	—	—	—	—	—	—	—	—
TOTAL	54,556	56,167	59,450	97.1	91.8	—	—	—	—	—	—	—	—	—

† See explanation according to the various systems, page 515. — * Countries included in the totals. —
 (a) Above the average. — (b) Average. — (c) Below the average. — (d) Very good. — (e) Good. — (f) Average. —
 (g) Bad. — (h) Very bad. — (w) Winter crop. — (s) Spring crop. — (i) sown up to January 1. —
 (z) Middle of the month. — (3) Middle of the previous month. — (4) Intentionally sown.

On the whole, on June 10 there was good reason to believe that the crop was not yet seriously damaged, but a continuation of the rains or a sudden rise in temperature might well affect cereal production unfavourably, though for the moment the crop is considered satisfactory.

Hungary: Wet weather and rather low temperatures continued in the last week of May and the first week of June, while the second week of June was warm and sunny. At the middle of June early sown crops of all cereals were dense and of very good appearance and the ears were well developed; only in the case of rye did the situation appear rather less favourable, as a result of the weather conditions which in many districts were unsatisfactory for flowering. Late crops were on the whole rather thin, with ears still undeveloped. On the whole it was possible to forecast a good or good average crop of wheat and good to average crops of rye, barley and oats.

(Telegram of June 26): The first estimates of cereals area and production in 1939, as compared with the final figures for 1938 and the of average 1933 to 1937, are as follows:—

CROPS	AREA					PRODUCTION					
	1939	1938	Aver- age 1933-37	% 1939		1939	1938	Aver- age 1933-37	% 1939		
				1938 = 100	Aver- age = 100				1938 = 100	Aver- age = 100	
	thousands acres										
Wheat	4,604	4,000	3,910	115.1	117.7	th. centals	61,606	59,267	48,643	103.9	126.7
Rye	1,730	1,562	1,581	110.7	109.4	th. bushels	102,675	98,777	81,070		
						th. centals	20,084	17,739	16,030	113.2	125.3
						th. bushels	35,865	31,677	28,625		

Ireland: May was exceptionally dry with very low night temperatures for the greater part of the month. Cereal crops progressed fairly satisfactorily, but rain was badly needed towards the end of the month.

Italy: In the first half of May the weather was on the whole wet and the temperature rather low. Storms, hail and strong winds were frequent. At the middle of the month the condition of wheat and other winter cereals, in spite of the unfavourable conditions, was on the whole still good or satisfactory. Persistent rain and winds in the second half of the month damaged crops and encouraged the spread of rust. However, on the whole, crop forecasts at the end of the month were still good.

Latvia: In May the weather was dry and windy and the temperature on the average 3° F. below normal. It was rather cold in the first half of the month and there were frequent night frosts. At the beginning of the second fortnight the temperature rose a little above normal but fell again sharply towards the end of the month. In the first fortnight the weather was very dry, and rain only fell in small quantities towards the end of the month. According to the reports of agricultural correspondants, the crop condition of wheat at mid-May was average in 52.6 per cent, of farms, above average in 13.9 per cent. and below average in 33.5 per cent. The corresponding figures for winter rye are 57.7 per cent, 27.4 per cent and 14.9 per cent.

Lithuania: May was dry and rather cold. There was even hoar-frost towards the end of the month. These conditions were very favourable for field work. The sowing of spring cereals proceeded actively in the first two decades of the month, and by May 20 was approaching completion. Owing to cold weather, growth is only making slow progress. Early sown cereals have risen well but the cold weather checked their growth. There were complaints of invasions of weeds.

Luxemburg: The cold, wet weather of the first half of May and the generally low temperatures throughout the month hampered the normal growth of all crops.

Norway: No winter damage is reported; following the cool weather of April and May the snow remained a long time in the north. At the end of May the preparation of the fields was completed. In the east rainfall was adequate, while in the west and south it was insufficient. For good growth crops are in need of further rain and high temperatures.

Netherlands: Weather in May, in the period preceding development, was not quite favourable. Precipitation was generally below normal and temperatures remained rather low. At the end of the month there was a complete change, with sunny dry weather until the middle of June. The effect on crops, which already required water was rather unfavourable.

Winter wheat showed very great differences: that sown early developed fairly well while that sown later was backward. On the whole crop condition in mid-June was almost good. Rye also suffered from drought and its growth was slow. Winter and spring barleys were in average condition. Spring wheat was generally better developed than winter wheat. In Zuid-Holland and Zeeland conditions were good to very good, in Groningen fairly good to good. On the sandy soils growth of winter wheat was less satisfactory. Condition of oats varied greatly according to quality but on the whole was fairly good.

Poland: According to the reports of the majority of crop correspondents, the weather in the second half of April was dry and sunny but rather cold, and in the north of the country there was even hoar-frost. Towards the end of April the weather turned warmer but only for a few days. At the beginning of May the temperature fell again and almost the whole of the month was rather cold with heavy

rainfall. Accordingly, 60 per cent. of correspondents reported for the second half of May insufficient warmth and sun and 50 per cent. also reported excessive soil moisture. A lack of warmth was recorded particularly in the south, except in the Tarnopol, Silesia, Kielce, Lodz and Poznan areas, where 60 to 100 per cent. of correspondents reported excessive soil moisture.

The heavy rain accelerated the growth of winter cereals, but caused lodging on low-lying land. Spring cereals have grown on the whole in good conditions.

In spite of the rather unfavourable weather in the period from May 15 to June 15, compared with the period April 15 to May 15, crops condition generally improved particularly for winter cereals, as is seen from the following table:

		1939		1938	
		June 15	June 1	May 15	June 15
Winter wheat	3.7	3.6	3.4	3.8	
Winter rye	3.7	3.6	3.4	3.7	
Spring wheat	3.2	3.3	3.1	3.3	
Spring barley	3.2	3.3	3.1	3.2	
Oats	3.2	3.3	3.1	3.1	

Crop condition of cereals on June 1 was improved in the Wolhynia, Tarnopol and Lublin areas, but had deteriorated at Wilno and Nowogrodek.

Romania: On June 20 the crop condition of cereals was good. In the south and east the harvesting of winter wheat had begun. Production will be very satisfactory, although the crop has suffered from rainstorms and rust. Spring barley will give a good yield, much better than last year. The oats crop, on the other hand, is rather unsatisfactory.

The first estimates of cereals area and production in 1939, as compared with the final figures for 1938 and the average of 1933 to 1937, are as follows:

CROPS	AREA						PRODUCTION				
	1939	1938	Ave- rage 1933-37	% 1939			1939	1938	Ave- rage 1933-37	% 1939	
				1938 = 100	Ave- rage = 100					1938 = 100	Ave- rage = 100
	thousand acres										
Wheat	9,856	9,435	8,213	104.5	120.0	th. centals	86,421	106,295	67,074	81.3	128.8
						th. bushels	144,033	177,154	111,787		
Rye.	1,188	1,190	991	99.8	119.9	th. centals	10,675	11,402	8,310	93.6	128.5
						th. bushels	19,062	20,362	14,840		
Barley.	2,548	3,158	4,123	80.7	61.8	th. centals	27,837	18,347	27,375	151.7	101.7
						th. bushels	57,995	38,223	57,032		
Oats	1,359	1,609	1,998	84.5	68.0	th. centals	13,228	10,209	14,653	129.6	90.3
						th. bu. hels	41,337	31,904	45,792		

United Kingdom: The areas sown to wheat, barley and oats in England and Wales show little change this year as compared with 1938.

Except for cold wet spells at the beginning and middle of the month, May was dry, sunny and warm. Conditions were favourable for agriculture, but rain was badly needed at the beginning of June. Winter wheat is generally strong and healthy.

Spring wheat germinated well but is still backward and patchy in some districts. Winter barley was not successful, but spring barley, though variable and slow in growth is promising. Oats generally look well, but some spring oats are backward.

Switzerland: Such a cold May has not been recorded since 1902. But, in spite of that, there were no destructive frosts. Cereal crops stood up fairly well to the bad weather. Lodging slightly damaged winter crops and the cold weather somewhat checked the growth of spring crops. On the average cereals are in better condition than at this period of last year. The crop condition of spelt at the beginning of June was, in the system of the country, 84 against 85 on May 1, 1939 and 82 on June 1, 1938.

Sweden: The winter was comparatively mild and crops on the whole came through well. In May growth was hampered by unfavourable weather conditions.

Yugoslavia: The dry weather of April and the first decade of May checked the growth of cereals, which remained thin and short in a number of districts. Heavy, stormy rain, particularly in the Banate of the Danube at Backa and Irem and less strong at Banat, at first brought about an appreciable improvement in cereal crops. But violent hailstorms occurred almost throughout the country at the beginning of the second decade of May, causing floods and consequently doing serious damage to cereal crops. The persistence of rain and the fall in temperature, lasting to the end of the first decade of June caused serious fears for crops. In fact, lodging and attacks of rust and ergot were reported in a number of districts. The return of fine, dry weather on about June 10 considerably improved crops, which, after being forecast on June 1 as poor and about 30-35 per cent. below last year's, are now considered satisfactory and only about 20 per cent. smaller.

U. S. S. R.: On May 31 the area sown to all spring crops, among which cereals represent more than two-thirds, amounted to 202,506,000 acres, or 99 per cent. of the area forecast by the Plan, against 202,597,000 or 97 per cent. at the same date last year. The sowing of spring cereals, which up to May 10 had been carried out on 79 per cent. of the area forecast by the Plan, had exceeded the Plan on May 25 by 2 per cent.

In the European Territory of the Union, the weather in the second decade of May was warm in the south, while in the north the temperature rose only during the second half of the decade. On the whole, temperature in the second decade of May were appreciably lower than normal in the north and slighter higher than normal in Crimea, Ukraina and North Caucasus. There was heavy rain in North Caucasus, the west of Ukraina and in White Russia. There were also good rains in some parts of the centre and part of the north-east.

In the third decade of May cloudy and moderately warm weather prevailed in the southwest and south, with frequent precipitation from storms of short duration and uneven distribution. In the greater part of Ukraina, around Rostov and Krasnodar, and in other parts of North Caucasus, rainfall amounted to from 1 to 2 inches. There was heavy rain also in the Orel, Kalinin and Riazan districts, while in the centre and north rainfall was from $\frac{1}{2}$ to 1 inch and in some parts even less.

In the first decade of June the weather was variable with heavy rain storms. A wave of cold air from the Polar regions was also accompanied by a sharp drop in temperature. There was heavier rain in the north (1 to 2 inches during the decade), in the west ($\frac{1}{2}$ to 1 inch), in the Caucasus (1 to 2 inches) and in the Tcheliabinsk area (1 to 2 $\frac{1}{2}$ inches). Heavy rain also fell in the Stalingrad region, in some parts of the Koubychev and Saratov areas and in the northeast of Ukraina. There was little

rain in the greater part of Ukraina, and in the regions of Rostov, Voroneje, Kursk, and Saratov. As a result of the rather low temperature and the rain, the disappearance of soil-moisture was not rapid. On June 10, the effective amount of moisture was from 1 $\frac{1}{4}$ to 2 $\frac{1}{2}$ inches in the territory north of the line Minsk-Voroneje and Tcheliabinsk, which sufficed to assure a normal development of crops. In the Crimea and Caucasus soil-moisture reserves had slightly increased, but they had heavily decreased in the greater part of Ukraina.

On June 10, winter rye in the south of Ukraina was in good or in very good condition at the phase of lacteous maturation. Winter wheat was at the phase of lacteous maturation in Crimea, North Caucasus and the south of Ukraina; crop condition varied from good to very good.

In North Caucasus, Crimea and southern Ukraina the crop condition of spring barley and oats was considered good.

In the west and centre the growth of winter and spring cereals proceeded in good conditions. In the north the growth of these crops was checked by the drop in temperature.

In the Asiatic territory of the Union, growing conditions for winter and spring cereals have been good, and in most areas crop condition on June 10 was considered good.

According to the recent reports of the Commissar for Agriculture, the crop condition of cereals at the beginning of June varied from good to very good in most parts of the country and only in a few areas was it considered as only satisfactory.

America.

Argentina: In May preparations for the sowing of cereals were carried out in good conditions, and, following rain at the end of May, germination improved since the official report of May 3.

Canada: Grain crops over most of the Prairie Provinces made a rather promising start in May. With the exception of southern Manitoba, southeastern and parts of central Saskatchewan and southeastern Alberta, spring moisture conditions were quite favourable. Sowing proceeded rapidly during the first ten days of May. In drier districts of the Prairies farmers delayed seeding somewhat, waiting for more favourable soil moisture conditions. High winds caused considerable soil drifting in the second week of May; while damage to crops was not widespread, some localities experienced moderate losses. Rains commencing May 19 and continuing till the end of the month promoted the recovery of drought- and wind-damaged grain. Some reseeded was necessary but was not general. Damage by cutworms and wire-worms occurred in some localities but no extensive losses from insect damage were reported. During warmer and drier weather in the early part of May grasshoppers became quite active but were checked by wet and cool weather in the latter part of the month. The threat of a general outbreak continued, however. Preparations were made to combat outbreaks and poisoning had already been undertaken in some areas.

Crop condition at the beginning of June was generally satisfactory. The first few days of June were cool and wet, which favoured crop development and retarded the activity of grasshoppers, which however still remain a menace over those parts of the Prairie Provinces needing moisture. Heavy rains fell on June 5 and benefited drought affected areas.

The following week continued cool and showery. Precipitation was light, but low temperatures helped to conserve moisture supplies. The weather also aided

in checking grasshopper development and damage from this source was confined to local areas during the week. Wheat crops had lost some of their advantage in earliness as a result of the cool weather, and moderately warm weather in the immediate future was required to promote rapid, healthy development. The only areas immediately in need of moisture supplies were northwestern Manitoba and southeastern Saskatchewan. Northwestern Saskatchewan and southern Alberta showed considerable improvement during the week and crop prospects were now promising in these areas.

Additional heavy rains across the Prairie Provinces during the third week of June further improved crop prospects. The dry areas of northwestern Manitoba and southeastern Saskatchewan received fair benefit from the rains. Temperatures continued low, holding grasshoppers in check. Cereal crop growth has been slow but favourable.

Chile: In the following table figures are given for the production of barley and oats during the 1938-39 season, compared with the data for the preceding season and the five-year average ending 1936-37.

	1938-39	1937-38	Average 1932-33 and 1936-37	1938-39	1937-38	Average 1932-33 to 1936-37	% 1937-38 = 100	% 1938-39 Average = 100
	thousand centals			thousand bushels				
Wheat	21,105	18,174	18,552	35,174	30,289	30,920	116.1	113.8
Barley	1,664	3,596	2,544	3,466	7,492	5,299	46.3	65.4
Oats	3,271	2,655	2,135	10,223	8,295	6,673	123.2	153.2

United States: During the first week of June, the temperature was generally above normal and rains were fairly well distributed from the Rocky Mountains eastward. Winter wheat harvesting was started in the southwest and spring wheat was greatly improved by rains.

During the second week the temperature was above normal and there was widely scattered rain. Rain was still needed in the Middle and North Atlantic states and also in the southwestern areas. Winter wheat was improved by the rains in some areas, and harvesting was hindered in others, but little change occurred in Kansas. Spring wheat improved.

During the third week of June there was general rain except in large areas of the southwest and there were marked contrasts in temperature, but the weather was mostly favourable for agriculture. The harvesting of winter wheat progressed satisfactorily but was interrupted by rains. Spring wheat was much improved.

According to a cable of June 10 the production of winter wheat indicated by condition on June 1 was 314,065,000 centals (523,431,000 bushels), a decrease of 12,346,000 centals (20,576,000 bushels) on the estimate issued a month ago. At this level, this year's production of winter wheat would be 23.8 per cent. below the actual outturn of last year but 5.3 per cent. above the 1933-37 average.

The rye crop is expected to amount to 19,392,000 centals (34,629,000 bushels), a decrease of 37.1 per cent., on last year but an increase of 0.5 per cent. on the five-year average.

Condition of spring wheat on June 1 was estimated at 71 per cent. of the normal against 87 per cent. a year ago and an average of 77 per cent. in the ten years 1927-

1936. Condition of oats was estimated to be 72 per cent., compared with 87 last year and a ten-year average of 77 while that of barley, also 72, compares with 87 and 78 respectively.

Uruguay: Following the spread of "pulgón verde" (*toxoptera graminis*) in important areas of the country, cereals sowing is retarded and irregular.

Asia.

Chosen: The first official estimates of wheat and barley production in 1939 are as follows, compared with the final figures of the preceding years.

		1939	1938	Average 1933-37	% 1939 1938 = 100	Average 1939 = 100
Wheat	(ooo centals)	7,371	6,290	5,566	117.2	132.4
	(ooo bushels)	12,285	10,483	9,277	117.2	132.4
Barley	(ooo centals)	29,315	24,721	25,021	118.6	117.2
	(ooo bushels)	61,075	51,504	52,128	118.6	117.2

India: Toward the end of May crop condition was reported to be fairly good on the whole.

In the Punjab in the four weeks ending June 5 the weather was dry except for light rain in parts. Crops were in average condition in irrigated areas and under average to average in unirrigated. In the Central Provinces the weather was hot; in the week ending June 3 it was also cloudy, with light showers in Sagore and Jubbulpore.

Japan: The preparation of the land and the sowing of spring cereals were carried out in favourable conditions.

Favoured by the weather, the crop condition of winter wheat was rather good.

Palestine: Weather conditions in May were abnormally hot with easterly winds, but during the last week cooler conditions prevailed. Atmospheric humidity was consequently low. No losses due to these conditions were reported, except 5 per cent. in the northern coastal plain. Yields are excellent.

The production of wheat in 1939 is estimated at 3,000,000 centals (5,000,000 bushels against 979,600 (1,632,700) in 1938 and an average of 1,928,800 (3,214,700) in 1933 to 1937; percentages, 306.2 and 155.5.

Africa

Algeria: May was at first wet. Later the weather became stormy and changeable. Some lodging is reported in a number of areas. Fine sunny days generally checked the spread of yellow rust, but black rust among hard wheat gave some anxiety on the littoral. Nevertheless, the crop condition of winter wheat on June 1 was good; that of soft wheat, oats and rye was average; that of barley was excellent and the first harvesting of this crop in the south gave excellent yields.

The first estimates of cereal production are as follows compared with the final figures of the preceding years.

June 1 estimates of Cereal Production.

	1938	1937	Average 1932-1936	% 1938 1937 = 100	Average = 100
	(thousand centals)				
Hard wheat	18,629	13,838	13,946	134.6	135.5
Soft wheat	8,267	7,127	6,700	116.0	123.4
<i>Total</i>	26,896	20,965	20,646	128.3	130.3
Barley	22,267	12,944	16,389	172.0	135.9
Oats	4,409	3,486	3,234	126.5	136.3
Rye	25	25	18	100.6	141.4
	(thousand bushels)				
Hard wheat	31,048	23,063	23,242	134.6	135.5
Soft wheat	13,779	11,878	11,166	116.0	123.4
<i>Total</i>	44,827	34,941	34,408	128.3	130.3
Barley	46,390	26,967	34,143	172.0	135.9
Oats	13,779	10,892	10,107	126.5	136.3
Rye	44	44	31	106.3	141.4

Egypt: Harvesting of the wheat crop was over in Upper Egypt at the end of May, and covered 85 per cent. of the area elsewhere. Threshing and storing were in progress. The yield is apparently satisfactory. Harvesting of the barley crop is over. The results of threshing show that the yield is satisfactory.

French Morocco: After a sharp drop in temperature at the end of April, with frost at Fès and Meknès in particular, the first decade of May was marked by rather fine rain and mist in the north and centre and snowfalls in the central Atlas region; later there was a period of *chergui* from May 10 to 15, and finally the month closed with normal temperatures in the coastal area with a little *chergui* in the interior. The growth of wheat continued to be satisfactory and the usual diseases or insect pests are doing only very little local damage. Barley harvesting began in north, central and eastern Morocco, in spite of the lack of labour, and was finished in the Marrakech, Sous, Abda Chiadma and Abda Ahmar districts; yields every where were above the averages of previous years, and in some cases they are exceptional. The grain is large, full and the specific weight high. Increases of 75 to 100 per cent. on the estimates of last year are forecast.

The first estimates of cereal production are as follows, compared with the final figures of the preceding years.

June 1 estimates of Cereal Production.

Crops	1939	1938	Average 1933-37	% 1939 1938 = 100	Average = 100
	(thousand centals)				
Hard wheat	14,881	8,057	9,650	184.7	154.2
Soft wheat	8,378	5,846	4,949	143.3	169.3
<i>Total</i>	13,259	13,903	14,599	167.3	159.3
Barley	46,915	23,937	25,353	196.0	185.0
Oats	1,676	1,048	569	159.9	294.6

Crops	1939	1938	Average 1933-37	% 1939 1938 = 100	% 1939 average = 100
	(thousand bushels)				
Hard wheat	24,802	13,428	16,083	184.7	154.2
Soft wheat	13,962	9,744	8,247	143.3	169.3
<i>Total</i>	<i>38,764</i>	<i>23,172</i>	<i>24,330</i>	<i>167.3</i>	<i>159.3</i>
Barley	97,740	49,869	52,819	196.0	185.0
Oats	5,236	3,275	1,777	159.9	294.6

Kenya: Abundant rains fell during April in all districts except at the coast, where abnormally dry conditions were experienced. As a result, there was widespread planting of cereal crops. Locusts were present in several districts, but damage to growing crops had so far only been slight.

Tunisia: The temperature in May remained below normal. Rain was exceptionally heavy and widespread. The excessive moisture assisted the spread of cryptogamic diseases of wheat (husk rust and *piétin*). Early soft wheat suffered most while hard wheat resisted fairly well. Barley is mature; in most areas harvesting began in June. Oats have made good growth.

On June 1 the estimates of cereal production were as follows, as compared with the final figures of preceding years:

Estimates of Cereal Production.

	1939	1938	Average 1933-37	% 1939 1938 = 100	% 1939 Average = 100
	(thousand centals)				
Hard wheat	6,834	4,409	4,762	155.0	143.5
Soft wheat	4,299	3,968	3,109	108.3	138.3
<i>Total</i>	<i>11,133</i>	<i>8,377</i>	<i>7,871</i>	<i>132.9</i>	<i>141.5</i>
Barley	7,716	2,205	3,946	350.0	195.5
	(thousand bushels)				
Hard wheat	11,390	7,349	7,936	155.0	143.5
Soft wheat	7,165	6,614	5,181	108.3	138.3
<i>Total</i>	<i>18,555</i>	<i>13,963</i>	<i>13,117</i>	<i>132.9</i>	<i>141.5</i>
Barley	16,076	4,593	8,222	350.0	195.5

Union of South Africa: In the southwest of Cape Province only scattered showers fell in April. Ploughing for cereal crops was held up until the real winter rains should come.

Current information on Maize.

Bohemia-Moravia (Protectorate): The area under maize in 1939 is estimated at 22,800 acres against 22,000 acres in 1938; percentage 103.9.

Bulgaria: Weather conditions in May were on the whole favourable for maize sowing, which was carried out in good conditions. Following rain the growth of crops also continued in good conditions.

Italy: In several districts the sowing of maize was not finished by the middle of May owing to rain. The very heavy rain of the second half of the month hampered late sowings. Growth is affected to some extent by excessive moisture and too low temperatures.

Romania: On June 20 maize was growing normally, and crop condition was better than in the last few years at this period. In two mountain departments, crops suffered from hoar-frost, which occurred on June 7 and 8.

Argentina: The harvesting and the threshing of maize, favoured by weather conditions, were in full swing at the beginning of June. The second estimate, made on June 7, of maize production in the 1938-39 season (113,538,000 centals or 202,748,000 bushels shows) a reduction of 5,500,000 centals (9,800,000 bushels) on the previous estimate and, while 16.4 per cent. above the exceptionally low figure of last season, (97,532,000 centals or 174,166,000 bushels) is well below (—41.5 per cent.) the average of the previous five years (193,978,000 centals or 346,391,000 bushels). The unsatisfactory result of the 1938-39 season is partly due to the reduction in the sown acreage compared with last season (—14.5 per cent.) and the average (—21 per cent.) and partly to the unfavourable season, particularly the drought and the excessively high temperature during sowing and growth.

United States: There was fairly heavy and widespread rain in the first half of June, which was favourable for maize crops. But in the third week further wet and cool weather tended to check growth.

Hungary: Early crops in mid-June had a generally good appearance; development of late crops, which had germinated well and uniformly, was hindered by rain and cold. In some places there were complaints of weeds. Sun was needed for satisfactory development.

Netherlands Indies: Java and Madura. — The Department of Agricultural Statistics of the Central Statistical Office communicates the following details on the maize area:—

	1939 acres	1938 acres
Area harvested in April	95,400	135,200
Area harvested from January 1 to April 30 .	2,477,300	2,408,600
Area of standing crops at the end of April .	1,002,800	992,400

Algeria: The first part of May was wet. Later the weather became stormy and changeable. The crop condition of maize on June 1 was average.

The area under maize in 1939 is estimated at 15,600 acres against 14,900 acres in 1938 and an average of 18,100 acres in 1933 to 1937; percentages, 104.4 and 85.9.

French Morocco: In May maize and sorghum were sown in eastern Morocco, at Taza and Ouezzane. During the month re-sowing was carried out everywhere where a return of cold weather had caused excessive loss. Crop development, favoured by rains during the month, is very satisfactory.

Tunisia: In May and at the beginning of June the temperature remained below normal. Rain was exceptionally heavy and widespread. Conditions were favourable for the first growth of maize and sorghum crops. Sowing was still in progress in some parts.

The area under maize and sorghum in 1939 is estimated at 61,800 acres against 42,500 acres in 1938 and an average of 52,200 acres in 1933 to 1937; percentages, 145.2 and 118.3.

Union of South Africa: In April there was a spell of cold weather with snow and frost in the Orange Free State and Transvaal and late maize crops were damaged, but most crops were sufficiently mature to withstand the adverse conditions. The remainder of the month was dry and warm. Conditions in Natal were favourable.

Current information on Rice.

Italy: In May the growth of rice was retarded owing to low temperatures. Seasonal work began.

British Guiana: It was reported in April that the milling of the rice crop was being hampered by the excessively wet weather.

Taiwan: The transplanting of first crop rice is finished. Growth continues in good conditions.

India: In Bengal in the last three weeks of May and the first week of June rainfall was generally light to moderate. Sowing was proceeding briskly and at the beginning of June weeding was in full swing.

In Bihar light rain fell in a number of districts and heavy rain in Purnea. In Orissa light rain was also general.

In Assam in the four weeks ending June 12 the weather was seasonable but there was some need of rain.

In the Central Provinces the weather was hot; in the week ending June 3 it was also cloudy, with light showers in Sagore and Jubbulpore.

In Madras, where sowing was proceeding, there was heavy rain in Tanjore in the week ending May 13, fair rain in parts of the Centre and light rain in the Circars in the following week, moderate rain in the central districts and on the west coast in the week ending May 27 and moderate rain in general in the subsequent week.

Netherlands Indies: Java and Madura. — The Department of Agricultural Statistics of the Central Statistical Office communicates the following details on the rice area:—

	1939 acres	1938 acres
<i>Area harvested in April:—</i>		
Wet padi	1,212,300	1,127,600
Dry padi	443,600	400,000
<i>Area harvested from January 1 to April 30:—</i>		
Wet padi	2,005,300	1,919,500
Dry padi	773,000	815,200
<i>Area of standing crops of the end of April:—</i>		
Wet padi	5,756,400	5,835,200
Dry padi	146,500	131,000

British Malaya: During March the weather was dry in most localities. Showers and storms occurred and the total precipitation approximated to normal. Showers became more frequent during the last part of the month.

The harvest was still proceeding in Krian. Yields were said to be slightly higher than last year, but quality was reported to be rather poor. As planting was not carried out simultaneously, harvesting was expected to continue over a long period.

In Malacca yields were generally rather lower than last season but a fairly good crop was reaped in inland areas near Alor Gajah.

The harvest in Kelantan was nearing completion. The dryland padi crop was reported to have been patchy, but in most localities yields were better than last year. Late planted areas were yielding poorly.

Egypt: Sowing of summer has advanced during May, 55 per cent. of the total area having been sown. Preparation, sowing, watering and draining were in progress. Weeding was started in early cultivations in some localities. Germination and growth were satisfactory.

Current information on Potatoes.

Germany: The growth of potatoes was retarded somewhat during April and May.

Belgium: Potatoes have grown rapidly since subsoil moisture is plentiful. Early varieties are coming on the market sooner than usual.

France: Potatoes, which were planted in May in rather poor conditions, rose at first very slowly and irregularly, particularly on heavy, wet land. The Colorado beetle made an appearance among early varieties.

Hungary: The rains were beneficial; vegetation was active and of good colour. In mid-June early varieties had in part passed the flowering stage; a certain proportion had been placed on the market.

Potatoes.

COUNTRIES	AREA					CROP CONDITION §)											
	1939	1938	Average 1933 to 1937	% 1939													
				1938 = 100	Aver. = 100	I-VI-1939			I-V-1939			I-VI-1938					
000 acres							a)	b)	c)	a)	b)	c)	a)	b)	c)		
Germany (including Ostmark and Sudetenland).	s) ...	410	506	...	...	2.8	—	—	—	—	—	—	—	—	—	—
Belgium	t) ...	7,271	7,045	...	...	—	—	3.1	—	—	—	—	—	—	—	—
Bohemia-Moravia	s) 363	364	398	99.7	91.4	a)	—	—	—	—	—	—	—	b)	—	—	
(Protectorate)	t) 39	39	—	102.5	—	—	—	—	—	—	—	—	—	—	—	—	
	828	821	—	100.8	—	—	—	—	—	—	—	—	—	—	—	—	
Luxemburg	43	43	41	100.0	104.3	2.5	—	—	—	—	—	—	2.6	—	—	—	
Netherlands:																	
p. for consumption . . .	...	274	287	...	...	—	—	64	—	—	—	—	69	—	—	—
p. for starch factories . .	...	69	61	...	...	70	—	—	—	—	—	—	71	—	—	—
Poland . . . . .	...	7,487	7,039	...	...	—	—	2.9	—	—	—	—	—	3.0	—	—
United Kingdom:																	
Scotland	135	135	139	100.2	97.5	—	—	—	—	—	—	—	—	—	—	—	
Switzerland . . . . .	...	123	116	...	...	66	—	—	—	—	—	—	75	—	—	—
Algeria s)	18	17	17	100.8	105.2	—	—	—	—	—	—	—	—	—	—	—	
Tunisia s)	7	7	5	100.0	147.1	—	—	—	—	—	—	—	—	—	—	—	

§) For the explanation of signs and figures indicating crop condition, see cereal tables and note on page 525. — a) Above the average. — b) Average. — c) Under average. — s) Early potatoes. — t) Main crop.

Italy: At the end of May the planting of main season potatoes was not complete owing to excessively wet weather. Growth was satisfactory.

Luxemburg: The dry, cold weather of the second half of May retarded the normal growth of potatoes.

Netherlands: Potatoes for direct human consumption developed slowly but, with favourable weather might easily recover. Potatoes for fecula were well developed and despite the drought the majority of the crops had a good appearance.

United Kingdom: Little damage was done to early potatoes by frost in England and Wales. The main crop, where already up, is promising. In Scotland planting was carried out in very favourable conditions.

Switzerland: The crop condition of potatoes is very variable. In early sown fields the cold, wet weather checked the growth of the tubers, and in those sown after the rains germination is only just beginning. Warm weather could still greatly improve crop condition.

U. S. S. R.: In the south and centre of the U. S. S. R. potato planting is finished, but in other areas was still continuing. On June 10 the area planted was 89 per cent. of the Plan, against 98 on the corresponding date last year.

Argentina: The lifting of potatoes was still in progress in May, with average yields.

Algeria: The first part of May was wet. Later the weather became stormy and changeable. Mildew is reported on main season potatoes. The early potato crop was variable in Oranie, where diseases of degeneracy did serious damage. Elsewhere the crop was average.

General Review of the Condition of the Sugar-Beet Crop.

In the second half of May cold, wet weather continued in all the European beet-growing countries, so that the growth of beet crops was slowed down. In some cases even night frosts occurred, but these were not very harmful. In the last ten days of May in the northwestern countries the weather was rather variable, now dry and windy, now warm and stormy, now dry and cold, but on the whole with rather less rain than in the remainder of Europe.

Agricultural work in general was carried on with some difficulty and weeding in some cases was not completed, but, while the weather during the month was not always favourable for beet crops, it was not as unfavourable as its exceptional abnormality had caused to fear. In fact at the end of May beet crops were retarded but of good colour, of thick and regular growth and almost free of disease. In some cases, as in certain districts of Poland, the plants did not survive the cold and wet and fields had to be resown, but these were only restricted areas and not of general importance.

At the end of May and in the first days of June the weather turned fine and conditions were more favourable for the growth of sugar-beet. At first the nights were clear and cold but later the temperature rose also at night. The work of cultivation was resumed regularly in spite of the fact that in some areas the hardening of the soil caused by the cold weather of May created some difficulty. Plants resumed growth and even to some extent made up some of their lateness.

In the first half of June the weather was generally warm and sunny but broken, especially in central and northern Europe, by strong winds with local rain and local falls in temperature. The growth of beet was favoured by these conditions and continued almost everywhere in a satisfactory manner. Weeding, hoeing and thinning are in full progress and the fields can be maintained without

Acreage of Sugar-beet.

COUNTRIES	1939 *	1938	Average 1933 to 1937	% 1939	
	acres			1938 = 100	Average = 100
Germany	1,386,736	1,335,424	1,008,538	104	—
Bohemia-Moravia	280,550	(x) 315,148	368,580	101	—
Slovakia	36,300				
Belgium	133,500				
Bulgaria	34,050	121,800	125,775	110	106
Denmark	96,000	28,956	17,955	118	190
Spain	(i) 120,000	96,000	101,962	100	95
Finland	8,350	(i) 235,000	206,447	53	60
France	623,000	12,800	7,463	65	112
Hungary	119,000	590,000	588,058	105	106
Ireland	44,000	109,064	94,245	109	126
Italy	368,313	51,181	48,208	86	91
Latvia	33,400	335,569	255,758	110	144
Lithuania	21,700	35,800	33,854	93	99
Netherlands	107,500	20,300	15,494	107	137
Poland	418,000	104,450	106,375	103	101
Romania	117,400	371,583	295,518	112	141
United Kingdom	350,000	117,429	86,938	100	135
Sweden	120,000	335,000	361,108	104	97
Switzerland	8,900	125,430	127,726	99	97
Yugoslavia	114,000	7,290	4,255	122	209
		71,825	56,440	158	201
Total Europe (a) . . .	4,540,699	4,420,049	3,910,697	103	116
U. S. S. R.	2,775,000	2,792,100	2,999,113	99	92
Total Europe (b) . . .	7,315,699	7,212,149	6,909,810	101	106
Canada	58,500	47,900	50,580	122	116
United States . . . . .	...	930,000	808,659	...	...
Total North America . . .	...	977,900	859,239	...	...
Japan	56,400	56,370	36,226	100	156
Manchoukouo	54,400	47,415	(z) 30,357	115	179
Turkey	91,000	51,950	68,489	176	133
Total Asia . . .	201,800	155,735	135,072	130	150
TOTALS . . . (a)	...	5,553,684	4,905,008	...	...
(b)	...	8,345,784	7,904,121	...	...

* Approximate data. — (a) Not including U. S. S. R. — (b) Including U. S. S. R. — (1) Licht's estimate. — (2) Year 1937.

difficulty. There has been in some cases a local re-appearance of cold weather, with heavy rain and even snow in the mountains of central Europe, but fine weather soon returned.

In the western European countries humidity was less and there was even in some cases drought, but generally beet crops even suffer these conditions without apparent damage, although rain is greatly needed.

On the whole, taking into account the various weather conditions and the reports received by the Institute, it may be concluded that the general condition of beet crops was more promising at the middle of June than at the middle of May.

* * *

In the U. S. S. R. the new figures of the beet area of this year and last year, given in the Table, instead of the figures of the Plan, are calculated on the basis of the percentage of the total area hoed, which was recently published in Soviet journals.

Current information on Sugar.

Belgium: Sugar-beet crops have a good appearance and are growing rapidly, the soil and subsoil moisture being plentiful. Even so, if the drought of the first half of June should continue, crops would suffer. Crop condition on June 1 was good.

France: In May sugar-beet rose with great regularity. The first hoeing and separating were carried out in excellent conditions. The area sown for sugar and distillation is very much higher than last year.

Hungary: In mid-June growth was good, leafage was abundant and of good colour. Second hoeing of early crops was in progress and late crops were being singled.

Italy: In May the growth of sugar-beet was irregular. In some districts resowing was necessary.

Netherlands: Crop condition in mid-June was fairly good to good. Only in Nord-Holland and Zeeland had some areas to be resown after the damage caused by *Atomaria linearis*. Crop condition in the system of the country was 66 on June 12, 1939 against 68 on June 13, 1938.

United Kingdom: The sowing of sugar-beet was practically completed by the end of May. There is a slight increase in area on last year. Conditions for sowing were favourable.

Switzerland: On early sown fields the cold wet weather checked the growth of sugar-beet, and among those sown after the rains germination is only just beginning. Warm weather may still greatly improve crop condition. Crop condition on June 1 in the system of the country was 72 against 69 at the same date last year.

U. S. S. R.: According to the Commissariat for Agriculture, hoeing had been carried out on June 10 on 89 per cent. of the areas sown to sugar-beet, thinning on 83 per cent. and inspection on 31 per cent. The corresponding percentages for last year are as follows: 97, 77 and 23.

As a result of the favourable weather conditions of May, beet crops are growing well. At the beginning of June crop condition was good.

During the 1938-39 season, the factories treated 346,000,000 centals (17,300,000 short tons) of beet, yielding 47,400,000 centals (2,370,000 short tons) of sugar.

Argentina: The sugar-beet crop this season was very poor, except on irrigated land.

Sugar-cane crop prospects for the season just begun are excellent.

Barbados: During April weather conditions were favourable for the reaping of the sugar-cane.

Production of Cane-sugar.

COUNTRIES	1938-39 (1)	1937-38	Average of 1932-33 to 1936-37	1938-39 (1)	1937-38	Average of 1932-33 to 1936-37	% 1938-39	
							1937-38	Average
							= 100	= 100
			thousand cents	short tons				
AMERICA.								
Antigua.	573	493	523	29,000	24,640	26,125	116	110
Argentina.	10,141	8,170	8,074	510,000	408,480	403,673	124	126
Barbados.	3,360	2,496	2,542	168,000	124,784	127,124	135	132
Brazil.	25,353	22,827	19,949	1,270,000	1,141,300	997,456	111	127
Cuba.	61,730	67,199	55,589	3,100,000	3,360,000	2,779,408	92	111
Ecuador.	419	397	402	21,000	20,000	20,081	106	104
United States (La. & Fl.)	11,600	9,240	6,408	580,000	462,000	320,439	126	181
British Guiana.	3,968	4,368	3,724	200,000	218,000	186,173	91	107
Jamaica.	2,676	2,647	1,803	133,800	132,371	90,163	101	148
Martinique.	1,213	1,135	1,053	61,000	56,800	52,646	107	115
Mexico.	7,772	6,687	5,483	388,602	334,325	274,142	116	142
Peru.	8,752	7,553	8,885	437,600	377,600	444,260	116	98
Puerto Rico.	19,268	21,543	18,392	963,000	1,077,138	919,577	89	105
Dominican Republic. . .	9,502	9,457	9,131	475,000	472,846	456,557	100	104
St. Kitts.	717	626	642	35,840	31,287	32,125	115	112
Trinidad.	3,527	2,995	2,925	180,000	149,662	146,248	118	121
Venezuela.	540	540	486	27,000	27,000	24,295	100	111
Total America.	171,111	168,371	146,011	8,579,842	8,418,233	7,300,492	102	117
ASIA.								
Taiwan.	32,430	21,830	18,313	1,621,000	1,091,468	915,628	149	177
India.	60,627	71,342	72,823	3,030,000	3,567,000	3,641,086	85	83
Japan.	3,286	2,576	2,202	164,300	128,689	110,117	128	149
Java.	34,172	30,841	19,888	1,710,000	1,542,037	994,406	111	172
Philippines.	22,708	22,064	24,316	1,140,000	1,103,200	1,215,777	103	93
Total Asia.	153,223	148,653	137,542	7,665,300	7,432,494	6,877,014	103	111
AFRICA.								
Egypt.	3,573	3,532	3,223	178,600	176,604	161,171	101	111
Madagascar.	265	238	243	13,000	11,900	12,000	111	109
Mauritius.	7,084	6,919	5,593	354,180	345,920	279,627	102	127
Reunion.	1,764	1,764	1,632	90,000	90,000	81,604	100	108
Union of South Africa	11,616	11,272	8,767	580,807	563,570	438,321	103	132
Total Africa.	24,302	23,725	19,458	1,216,587	1,187,994	972,723	102	125
OCEANIA.								
Australia.	18,298	18,109	14,692	910,000	905,400	734,582	101	125
Hawaii.	19,158	18,360	19,423	957,900	918,000	971,133	104	99
Fiji Is.	2,853	2,942	2,905	142,600	147,093	145,264	97	98
Total Oceania.	40,309	39,411	37,020	2,010,500	1,970,493	1,850,979	97	109
TOTALS.	388,945	380,160	340,031	19,472,229	19,009,214	17,001,218	102	114

(1) Approximate data.

British Guiana: It was reported in April that large areas were under water due to excessive rains, and some damage to cane crops was feared. Estates, however, were still grinding.

St. Kitts: It was reported in April that the young cane crop was looking well but rain was needed.

St. Lucia: It was reported in April that all sugar factories were working and results were satisfactory.

Trinidad: During April the weather continued favourable for the reaping of the sugar cane, the sucrose content of which was stated to be generally better than that of the last crop. Shortage of field labour however was reported.

Taiwan: The growth of cane in the new plantations is proceeding in good conditions and in old plantations in even better.

Netherlands Indies: Java and Madura. — In the second half of May the eastern monsoon blew, bringing copious rain, especially in the east of the country. Weather conditions were favourable for agricultural work, especially the planting of the cane.

Wet weather continued in the first half of June, but rain was less in the east of Java than in the centre and west. A large amount of lodging of cane was reported and some difficulty was experienced in the work of cultivation (*Aneta*).

Egypt: Growth of the sugar-cane crop is progressing satisfactorily owing to the favourable weather conditions and adequate water. Hoeing, manuring and watering are in progress. Crop condition on June 1 was normal.

Mauritius: The production of cane sugar for the season 1939-40 is unofficially forecast at 5,500,000 centals (275,000 short tons) against 7,084,000 (354,200) in 1938-39 and an average of 5,886,000 (294,300) in 1933-34 to 1937-38; percentages, 77.8 and 93.6.

Union of South Africa: The production of raw cane-sugar in 1939-40 is estimated at 11,622,000 centals (581,000 short tons) against 11,616,000 (580,800) in 1938-39 and an average of 9,426,000 (471,300) in 1933-34 to 1937-38; percentages, 100.1 and 123.3

Current information on Vines.

Germany: Vines were damaged during the severe frosts and changes of temperature in mid-December. In addition growth is rather retarded owing to the cool weather of the spring of 1939. The general rise in temperature, however in the third decade of May accelerated growth, to such an extent that in all areas the condition of vineyards is better than normal.

The average crop condition in the Reich is 2.6 against 3.4 at the corresponding date of last year. The general appearance of vines justify good hopes for the vintage, owing to the fine weather of June.

Bohemia-Moravia (Protectorate): Vines had not been affected by the winter frosts and at the beginning of May crop condition was good.

France: Cold wet weather in May checked the normal growth of vines, hampered work and the cleaning of the land and in most cases it reduced the efficacy of the treatment. Strong winds damaged many fruit-bearing buds. In regard to diseases, attacks of mildew are already frequent, particularly in the Narbonnais and the sheltered and badly ventilated valleys of the Bouches du Rhône. On the other hand, appearances of *cochylis* and *eudemis* are not numerous. It is now possible to measure the exact extent of the damage done by the winter frosts. This damage is very severe particularly in Charente. The growth of clusters is very variable.

Greece: The preliminary estimates of the area under vines in 1939, compared with that of 1938 and the average of the years 1933 to 1937 are as follows:—

Area under Vines in Greece.

	1939	1938 (acres)	Average 1933-1937	% 1939 = 100	Average = 100
Vines:					
for wine grapes	388,780	392,000	367,110	99.2	105.9
for table grapes	45,830	48,800	47,110	93.9	97.3
for dried grapes	198,020	198,580	187,330	99.7	105.7
<i>Totals</i>	<i>632,630</i>	<i>639,380</i>	<i>601,550</i>	<i>98.8</i>	<i>105.4</i>

Hungary: The higher temperatures in the second half of June greatly improved crop condition, which had been badly affected by the cold rainy weather of the preceding weeks. In the vineyards of the hotter districts flowering had already begun. *Peronospora* had appeared practically everywhere but without so far causing damage.

Italy: The growth of vines was on the whole good in May. Nevertheless, damage was feared if the weather should continue wet and cool.

Luxemburg: The excessively low temperatures of May had an unfavourable effect on the growth of vines.

Switzerland: Owing to the cold weather of May the growth of vines is about two weeks late. Sprouting was normal, but later growth slowed down. So far crop prospects are favourable, particularly as there have been no spring frosts. If blossoming takes place in good conditions, the yield of vines will be satisfactory. Crop condition on June 1 in the system of the country was 68 against 39 at the same date last year.

Argentina: It is confirmed that grape production this season is lower than last year in Mendoza and Río Negro Territory, following damage done to vines by frost and winds. However, the production of these two viticultural centres may be considered satisfactory. The drought of January and February very seriously damaged vines in San Juan. Grape production in Salta and Jujuy, though lower than last year, is considered satisfactory.

Algeria: May was wet at first and later was stormy. Flowering took place in good conditions.

Tunisia: Frequent rain in May and June assisted the spread of cryptogamic diseases among vines (mildew and *oidium*), against which viticulturists waged an energetic campaign with sulphur sprays and dustings. The flowering of vines at the beginning of June was in progress or already finished.

Current information on Olives.

France: In May the blossoming of olive-trees had hardly begun in favoured localities. The number of clusters is everywhere high but buds are less numerous than usual except in Languedoc and Roussillon, where the crop was poor in 1938.

Greece: The weather in the second half of April and the first half of May was very favourable for the growth and flowering of olive-trees in almost all the producing areas of Greece. Measures were being taken to combat *dacus*, and it was hoped to

reduce damage to a minimum. Oil production at present is reported to be very satisfactory, particularly in Corfu, Euboea and Crete. The rather wet weather of the second half of March and the first decade of June had not affected the condition of olive trees.

Italy: The growth of olive-trees was good in May.

Argentina: Olive picking was still in progress in May. The crop is of good quality and yields on the whole are considered satisfactory.

Algeria: The flowering of olive trees was finished in May. Although growth is late, it is hoped that the future crop will be large.

French Morocco: The blossoming of olives, which took place in May in good conditions, promises a good crop.

Tunisia: In May the temperature remained below normal. Rain was exceptionally heavy and widespread. The flowering of olive trees was satisfactory. In the south, however, fruit formation was rather irregular owing to variable weather and attacks of false puceron. The growth of trees is good. Crop forecasts are good or fairly good.

Current information on Flax.

Finland: The production of flax in 1938 is estimated at about 2,218,500 lb. against 2,278,000 lb. in 1937 and an average of 3,551,900 lb. in 1932 to 1936; percentages, 97.4 and 62.5.

France: The growth of flax, checked at first at the beginning of May by unfavourable weather, became vigorous towards the end of the month following the rise in temperature. The area under flax is about 120,000 acres. Condition is now fairly good although certain crops have been invaded by flea-beetles and mustard.

Area and Crop Condition of Flax.

COUNTRIES	AREA SOWN					CROP CONDITION †)								
	1939	1938	Average 1935 to 1937	% 1939		I-VI-1939			I-V-1939			I-VI-1938		
				1938 = 100	Aver. = 100									
						1,000 acres		a)	b)	c)	a)	b)	c)	a)	b)	c)
Belgium	110	77	58	143.5	189.6	—	e) f)	—	—	—	—	e)	—	—
Bohemia-Moravia .	11	10	—	116.0	—	—	—	—	—	—	—	—	—	—
Italy	37	30	24	125.4	154.0	—	—	—	—	—	—	—	—	—
Netherlands . . . .	...	50	25	...	...	—	—	55	—	—	—	67	—	—
U. S. S. R. 1) . .	4,352	4,461	5,351	97.5	81.3	—	—	—	—	—	—	—	—	—
Canada	278	221	299	125.7	92.9	—	—	—	—	—	—	—	—	—
India	3,094	2,948	2,572	105.0	120.3	—	—	—	—	—	—	—	—	—

†) For the explanation of signs and figures indicating crop condition, see cereal tables and notes on page 515
a) Above the average. — b) Average. — c) Below the average.
1) « Dolgunetz » variety grown for linseed and fibre.

Hungary: Flax for fibre had a very satisfactory appearance in mid-June and showed vigorous growth. The rise in temperature in the second half of the month stimulated growth of flax for seed, which was, however, thin in many places.

Ireland: May was exceptionally dry with very low night temperatures for the greater part of the month. Flax crops made satisfactory progress.

Italy: In May the growth of flax was normal.

Netherlands: Flax has suffered greatly from drought, especially where sown late. The stems are generally very short.

U. S. S. R.: On June 5 the sowing of flax for fibre (Dolgumetz variety) was practically completed in the principal producing areas of the Union. The area sown to the above date was 4,352,000 acres, or 99 per cent. of the Plan, against 4,461,000, or 99 per cent. of the Plan, to the same date last year.

Flax sowing was carried out more rapidly than last year and the condition of the seedlings is good almost everywhere. At the end of the first decade of June flax was flowering in White Russia and western Ukraina. In eastern Ukraina flowering had begun. Crop condition was considered satisfactory.

Argentina: In May preparation of the land for flax sowing was carried out in good conditions. Following rain at the end of May, germination improved in the flax belt in the north of the country.

Current information on Cotton.

Italy: In the first half of May the sowing of cotton was nearly completed. In the second half of the month growth was checked to some extent by unfavourable weather.

U. S. S. R.: On May 10 the Plan for cotton sowing had been practically completed; 4,883,000 acres had been sown, against 4,863,000 in 1938, or 99 per cent. of the Plan in both years. The average area sown in 1933 to 1937 was 4,977,000.

Weather conditions were favourable for crops, and on June 10 cotton in central Asia, according to the report of the Commissariat for Agriculture, was almost everywhere at the stage of bud formation. Crop condition was good in Uzbekistan and Tadzhikistan and on the whole satisfactory in other areas. Earthing up, cleaning and irrigation were carried out in good conditions.

In the areas recently assigned to cultivate cotton (Ukraina, North Caucasus and Crimea) the crop condition of cotton was good at the beginning of June.

Argentina: Rain in the second half of April in the principal cotton producing centres of the country interrupted the picking of early varieties. In the Chaco results are considered good in the centre and east and average in the west.

United States: During the week ended June 7, conditions generally in the cotton belt were rather unfavourable through cloudy and wet weather and a consequent lack of cultivation over large areas. Temperatures were mostly seasonable, but rainfall was unfavourably heavy. During the following week temperatures were moderately high, and rainfall was frequent in considerable areas. In general, cotton made good progress in western and more eastern portions of the belt, but much of the central area continued too wet. The first cotton bale of the season is reported from Rio Grande City, Texas.

India: In the Punjab in the four weeks ending June 5 the weather was dry except for light rain in parts. Crops were in average conditions in irrigated areas and under average to average in unirrigated; there was damage from kutra insects in Gurgaon.

In the Central Provinces the weather was hot; in the week ending 3 June it was also cloudy, with light showers in Sagore and Jubbulpore. In Bombay local scattered showers fell in Guzarat and light to moderate showers in the south of the province. In Sind on June 10 no rain had fallen; sowings continued and germination was good.

Algeria. The first part of May was wet. Later the weather became stormy and changeable. Accordingly, the sprouting of cotton seeds was very late and irregular. Moreover, growth was poor owing to rains and cold weather.

Egypt: During the latter half of May the favourableness of the weather conditions and the rise of temperature in almost all days of this period had significantly a good effect in accelerating growth and increasing branching. The flower buds appeared increasingly in the early cultivations of the South of Delta and Middle Egypt. The first beginnings of flowers were observed there. Flowering was general in the early cultivations of Upper Egypt where the bolls began formation in Qena and Aswan provinces. Thinning is still proceeding in the late cultivations of the Northern regions and some localities in Upper Egypt (areas sown after winter crops). Crop condition is satisfactory.

Towards the end of May, egg-masses of cotton leaf-worm gradually spread over all the provinces. The attack is still slight and restricted to small patches. The work of picking up the egg-masses before they hatch.

Nyasaland: It was reported in April that the cotton crop had been adversely affected by the wet season.

Tanganyika: It was reported in April that cotton picking had commenced in the Lake Province with the promise of fair yields. The indications pointed to good crops of cotton in the Northern and Eastern Provinces but in the Tanga Province it was stated to be dependent on further rain.

Current information on Hemp.

Hungary: In mid-June the crop was healthy and had made good progress. The crop was dense and the stems high. Flowering had begun in several places.

Italy: The total area under hemp in 1939 is estimated at 223,600 acres against 224,600 acres in 1938 and an average of 172,700 acres in 1933 to 1937: percentages 99.6 and 129.5. In May the growth of hemp was normal.

U. S. S. R.: The sowing of southern (Italian) hemp, which is cultivated principally in Ukraina and North Caucasus, had been carried out on June 5 on an area of 210,500 acres, or 96 per cent. of the figure forecast by the Plan; northern (Russian) hemp, which is cultivated in the central zone and in Ukraina, was sown on June 10 over an area of 947,600 acres or 83 per cent. of the Plan, against 898,500 acres, or 74 per cent. of the Plan at the same date last year.

Argentina: The hemp crop was satisfactory in the province of Santa Fé.

Current information on Hops.

Belgium: The area cultivated to hops this year is about 2,000 acres against 1,840 in 1938 and 2,100 on the average of the five years ending 1937; percentages 111.0 and 97.4.

Hungary: In mid-June development was everywhere good and flowering had begun in many places.

United Kingdom: Hop bines are mostly healthy and of good colour, but rain would be beneficial.

Current information on Tobacco.

Belgium: The area under tobacco in 1939 is estimated at 6,600 acres against 5,300 acres in 1938 and an average of 7,100 acres in 1933 to 1937; percentages, 124.6 and 93.4.

Greece: In eastern Macedonia and Thrace weather conditions in May at first favoured the growth of tobacco plants in most areas, except for certain districts in the Drama region where owing to the fall in temperature growth was retarded. In the first days of the second decade of May planting out was carried out in almost all the departments of the prescribed area. At the same time the third and last ploughing and harrowing of the fields were undertaken with special care. The humidity of the soil greatly assisted the rooting of the plantations in all departments. Heavy rain-fall in all parts of central and western Macedonia in the third decade of April and the subsequent rise in temperature had considerable influence on the growth of plants by assisting the execution of preparations of the land: ploughing, harrowing, etc. These favourable conditions for the crops also assisted planting out. In the mountain zones this work, having first been begun locally spread rapidly from the second decade of May onwards and was expected to be completed by mid-June. Crop forecasts are now very favourable in regard to quantity.

In Thessaly and Phiotis and Phocis between April 20 and May 20 good rains fell, which greatly favoured the growth of seedlings and also accelerated the preparation of the fields. Seedlings are in good condition, being only slightly affected by diseases. Transplanting proceeded up to the end of May in the most favourable conditions.

Hungary: In mid-June the transplanted crop showed vigorous development but much more sunlight and warmth was needed. First hoeings were in progress.

Italy: In May the transplantation of tobacco was made difficult by bad weather.

Argentina: In May tobacco picking was in progress in the Chaco and in the provinces of Corrientes and Tucumán, with generally satisfactory yields. The drought was unfavourable for crops in the provinces of Córdoba and Catamarca, where yields were low. In the National Territory of Misiones harvesting was well advanced and production was larger than last year.

Algeria: Following stormy and variable weather towards the end of May, the preparation of the land for tobacco planting was retarded. At the beginning of June planting out was carried on actively. The plants caught on well.

Tanganyika: It was reported in April that the tobacco crop in the Iringa district had improved on earlier expectations.

Tunisia: The area under tobacco in 1939 is estimated at 865 acres against 815 acres in 1938 and an average of 1,070 acres in 1933 to 1937; percentages, 106.1 and 80.8.

Current information on Other Products.

Cacao.

Trinidad: Little cacao was being picked in April and the crop was stated to be short. It was reported that witchbroom was spreading.

Gold Coast and Togoland under British Mandate: MID CROP 1939. — It was reported by the end of April that conditions for growth had been mainly favourable throughout the cacao areas and that the mid crop should therefore develop normally. From district reports it was estimated that about 3 per cent. of the crop was already ripe and that 8 per cent would be ripe by the end of May. Some 2 ½ per cent. had been harvested, of which 1 per cent. had been marketed. It seemed probable that the mid crop would again merge with the early main crop.

The grade percentages of original sampling and check sampling at the ports are summarized in the table below.

Grade per cent. during April 1939.

	Original sampling (14,096,000 lb.)	Check sampling at ports (53,321,000 lb.)
I	31.2	23.2
II	46.9	62.0
III	19.3	12.7
Sub-grade	2.6	2.1
	<u>100.0</u>	<u>100.0</u>

The percentage of under-fermented beans found in the cacao check samples at ports averaged 15.6 per cent. Stocks in farmers' hands in Ashanti, the Western and Central Provinces were so small that no samples were taken during April; in the Eastern Province where small quantities were to be found samples were taken from 150 lots giving an average purity of about 90 per cent. The average number of beans in the standard 14 cubic inches space bean count during April for all ports was 127.7.

No change was made in the estimate of 18,000 long tons (40.3 million lb.) for the 1939 mid crop, published in the last Report.

MOVEMENT. — Movement statistics for April are given in the following table. Figures refer exclusively to 1938-39 main crop cacao as the amount of 1939 mid crop already marketed was negligible.

	April 1939	April 1938
	(million lb.)	
Railway off-loadings, Takoradi	12.7	1.2
Exports:		
Takoradi	25.5	1.2
Accra	20.4	1.8
Other ports	7.9	4.8
<i>All ports</i>	53.8	7.8
Eastern Frontier . . . . .	...	0.0
<i>Total exports</i> . . . . .	...	7.8

Tea.

India: In North India in the first half of April droughty conditions prevailed but latterly some useful rain fell in certain areas, though not sufficient for requirements and more is badly needed. Up to the end of April there was a decrease of 4,952,000 lb. on the outturn to the same date last year.

In South India the weather was hot in the earlier part of April but seasonable conditions prevailed later on and crop condition improved. Outturn in south India was 9.33 per cent behind that to the same date last year.

Japan: Weather conditions were favourable for tea plantations, the growth of which was normal.

Nyasaland: It was reported in April that the tea crop had been adversely affected by the wet season.

Tanganyika: It was reported in April that tea had flushed well in the Southern Highlands.

Coffee.

Brazil: The exportable crop of coffee in the 1939-40 season for the period ending March 31, 1940, as estimated by the Departamento Nacional do Café, is 29,843,000 centals. To this figure has been added stocks carried over from the 1938-39 season, amounting to 926,000 centals. The total figure of exportable supplies in the 1939-40 season thus reaches 29,843,000 centals against 31,315,000 last season. In the following table are given the partial figures for the 1939-40 season by states, with corresponding figures for the three preceding seasons.

	1-VI-1939 to 31-III-1940	1-VI-1938 to 31-III-1939	1-VII-37 to 31-III-1938	1-VII-1936 to 31-III-1937
	(thousand centals)			
São Paulo	20,909	19,524	23,188	17,590
Minas Geraes	4,112	5,216	5,763	6,080
Espírito Santo	1,254	1,448	1,753	2,320
Rio de Janeiro	708	1,238	1,290	1,260
Paraná	1,140	714	959	410
Bahía	397	397	331	400
Pernambuco	265	265	265	310
Goiás	132	132	132	90
<i>Total</i>	28,917	28,934	33,681	28,460
Stocks remaining for disposal from preceding seasons	926	2,381	—	—
<i>Total exportable production</i>	29,843	31,315	33,681	28,460

In a Congress of the coffee producing States of Brazil, held under the auspices of the D. N. C., a biennial plan covering the 1939-40 and 1940-41 seasons was adopted. The plan envisages a series of measures to be taken with the object of restoring equilibrium between exports and the capacity of absorption of the world coffee market,

while arrivals of coffee at the ports of shipment will also have been regulated. These measures may be summarized as follows:

(1) For deliveries of common qualities of coffee (*despachos comuns*) of the 1939-40 season an equilibrium quota has been fixed at 30 per cent. of the total, which will be purchased by the D. N. C. at the price of 2 milreis per bag of 60.5 kilograms gross, including the bag. This quota must consist of coffees not inferior in quality to grade 8 or with a maximum of 1 per cent. impurities.

(2) For deliveries of better quality coffee (*despachos preferenciais*) of the same season an equilibrium quota of 15 per cent. of the total has been fixed; the grades and types of coffee will be decided by the D. N. C.

The coffee definitively acquired by the D. N. C. must be eliminated from the market, except that used for industrial purposes or advertising.

Arrivals at the ports of shipment have been regulated by the D. N. C. so that the respective stocks in the 1939-40 commercial season will be maintained within the following limits: Santos 291,000,000 lb., Rio and Nitcheroy 93,000,000 lb., Victoria 40,000,000 lb., Paranaguá 20,000,000 lb., Angra do Reis 13,000,000 lb., Bahía 8,000,000 lb. and Recife 6,500,000 lb., a total of 471,000,000 lb. The D. N. C. is authorized to raise or lower the relative amounts at the various ports according to the world requirements of coffee. In addition, the Congress of coffee states reaffirmed the ban on new plantation in Brazil and settled the general lines of the domestic and foreign coffee policy to be followed by Brazil for the increase of coffee exports. For the 1940-41 season the equilibrium quotas will be fixed by the D. N. C., whose existence has been prolonged to June 30, 1941, after having heard the Advisory Council of the Coffee States.

Netherlands Guiana: The condition of coffee plantations in April was generally good.

Dominican Republic: The weather has been very favourable for coffee picking. A very large crop for 1938-39 is confirmed.

Venezuela: Coffee crop forecasts in 1939-40 are excellent. The total area of coffee plantations is 1,000,000 acres, of which 740,000 are in bearing.

French Equatorial Africa: The exportable coffee crop in 1939 is officially estimated at 57,700 centals, against 48,600 actually exported in 1938. The total area of coffee plantations in 1939 is estimated at 31,900 acres, of which 22,300 are bearing.

Nyasaland: The crop condition of coffee plantations on April 1 was average.

Sierra Leone: The condition of coffee plantations on April 1 was considered average in the country as a whole.

Tanganyika: It was reported in April that good coffee crops were forecast from the Northern Province and the Mbeya district. Coffee picking was in full swing in Bukoba.

Hawaii: The weather in April was favourable for coffee crops, the condition of which on May 1 was considered good.

Groundnuts.

Argentina: The groundnut crop was good in Santa Fé and Entre Rios. Quality is satisfactory. In Córdoba yields vary from mediocre to good. In Salta and Tucumán yields are considered satisfactory.

Netherlands Indies: Java and Madura. — The Department of Agricultural Statistics of the Central Statistical Office communicates the following details of the groundnut area:—

	1939 acres	1938 acres
Area harvested in April	20,000	31,100
Area harvested from January 1 to April 30 . .	159,400	171,700
Area of standing crops at the end of April . .	197,900	223,400

Egypt: Sowing of the groundnuts crops was proceeding in late areas. Hoeing and watering of other areas were in progress. Germination and growth were satisfactory.

Tanganyika: Although the groundnut position was reported to have improved in the Lake and Western Provinces, it was anticipated in April that the production would be below the average of the past five years.

Colza and Sesame.

Bohemia-Moravia (Protectorate): In some areas colza was damaged by the winter frosts. At the beginning of May, however, crop condition was good.

The area under colza and rape in 1939 is estimated at 9,200 acres against 9,700 acres in 1938; percentage, 95.0.

Hungary: In mid-June growth of colza was vigorous; for the country as a whole a good average crop was in prospect but more warmth and sunshine was needed for satisfactory ripening.

According to the most recent estimate, the area cultivated to colza this year will be about 27,200 acres against 28,000 in 1938 and 24,000 on the average of the five years ending 1937; percentages 96.9 and 113.3. The corresponding production is estimated at about 222,700 centals against 251,200 and 169,100; percentages 88.6 and 131.7.

Netherlands: In mid-June colza had not recovered from the cold weather of the first period of growth. Crop condition was 51 on June 12, according to the system of the country, against 35 on April 17, 1939 and 77 on June 13, 1938.

Poland: Crop condition of winter colza on May 15 in the system of the country was 3.0 against 3.5 at the same date last year.

India (Telegram of May 30): According to the final estimate area cultivated to rape and mustard this year was about 5,462,000 acres against 5,461,000 in 1937-38 and 5,745,000 on the average of the five years ending 1936-37; percentages 100.0 and 95.1. The corresponding production is estimated at about 20,541,000 centals against 22,938,000 and 21,638,000; percentages 89.6 and 94.9.

Current information on Fodder Crops.

Germany: The condition of fodder crops was better than in previous years except in the case of clover.

Belgium: Meadows, which were already damaged by frost last December, are now suffering from drought. Clover crops are in the same condition.

Bohemia-Moravia (Protectorate): Clover was seriously damaged by winter frosts in some areas, particularly red clover. At the beginning of May permanent meadows were making good progress, but like other crops, were in need of warmer weather.

Finland: Fodder crops came through the winter badly, and clover has been extensively damaged.

Greece: The area under clover in 1939 is estimated at 36,000 acres against 32,000 acres in 1938 and an average of 27,000 acres in 1933 to 1937; percentages, 111.4 and 134.0.

Hungary: The first cut of clover and alfalfa gave very satisfactory results in many districts; in some areas quality suffered from the rains that fell while the crop was still in the fields. Fodder beet had abundant leafage and good colour. Permanent meadows had a good appearance and, where not flooded, promised good unit-yields. In the middle of June haymaking was proceeding.

Pastures are well supplied; growth is excellent.

Ireland: May was an exceptionally dry month. The hay crop suffered, but the extent of the damage has not yet been ascertained.

Italy: The weather in May caused some delay in the cutting of meadows: hay-making was hampered by rain, which in some districts damaged the hay. The growth of pastures at the end of the month was good.

Latvia: Owing to the cold weather of May and at the beginning of June, there was little grass on pastures, certainly much less than usual and than last spring. Abundant supplies of fodder, however, from last year are available and stock are not short of feed.

Netherlands: Red and white clover crops are in such poor condition as a result of the severe cold and persistent drought that it is doubtful if they can recover. The condition of permanent meadows is also poor. The condition of alfalfa on the other hand is fairly satisfactory. The quantity of the hay crop is poor but the quality is good.

Romania: The first cutting of permanent meadows gave a good yield. On June 20 pastures offered a good feed for stock.

United Kingdom: Except for cold, wet spells at the beginning and middle of the month, May was dry, sunny and warm. Rain was needed at the beginning of June. Pastures which were fairly fully stocked in May improved during the month in England and Wales, but were still bare for the time of year. Hay yields however, both of rotation and permanent meadows were forecast as about average. The germination of mangels and turnips and swedes, if slow, was mostly fair to good.

In Scotland pastures were rather bare and backward for the season and were in need of rain at the beginning of June.

Sweden: Fodder crops wintered well but growth was hampered by unfavourable weather conditions in May.

Switzerland: In spite of bad weather grass made good growth on permanent and rotation meadows, so that a satisfactory quantitative crop of hay may be anticipated. The best hay, however, the May crop, will be lacking this year, but if the weather allows, the quality will still be satisfactory. Frequent rain had an unfavourable effect in the mountains, where cold weather checked growth, so that in many districts there was a shortage of feed supplies, aggravated by the fact that hay crop forecasts were low. Moreover, the climb up to Alpine pastures was considerably retarded. In

The Condition of Fodder Crops.

CROPS AND COUNTRIES	CROP CONDITION †)								
	1 June 1939			1 May 1939			1 June 1938		
	a)	b)	c)	a)	b)	c)	a)	b)	c)
ALFALFA:									
Germany 1)	2.8	—	—	2.7	—	—	—	—	—
Netherlands	2) 60	—	—	3) 54	—	—	2) 66	—	—
Canada	—	—	95	—	—	—	—	—	95
United States	—	—	78	—	—	—	85	—	—
CLOVER:									
Germany 1)	—	—	3.2	—	—	3.1	—	—	—
Latvia:									
annual clover	3) 3.1	—	—	—	—	—	3) 3.7	—	—
biennial clover	—	—	3) 2.7	—	—	—	3) 3.2	—	—
Lithuania:									
annual clover	—	—	—	—	—	2.9	—	3.3	—
biennial clover	—	—	—	—	—	2.1	—	—	2.8
Netherlands:									
red clover	—	—	2) 42	—	—	3) 40	—	—	2) 65
* whit clover	—	—	2) 44	—	—	3) 40	—	2) 70	—
Poland	—	—	3) 2.9	—	—	3) 2.9	3) 3.1	—	—
Egypt (bersim)	101	—	—	101	—	—	101	—	—
United States	—	—	75	—	—	—	85	—	—
MANGELS:									
Germany 1)	2.9	—	—	—	—	—	—	—	—
Switzerland	70	—	—	—	—	—	70	—	—
SWEDES:									
Germany 1)	—	3.0	—	—	—	—	—	—	—
TEMPORARY MEADOWS:									
Sweden	—	—	2.9	—	—	—	—	—	2.8
Switzerland	86	—	—	84	—	—	58	—	—
Canada 4)	—	—	94	—	—	97	—	100	—
United States 5)	—	—	74	81	—	—	84	—	—
PERMANENT MEADOWS:									
Germany: 1)									
irrigated meadows	2.6	—	—	2.5	—	—	—	—	—
other meadows	2.8	—	—	2.8	—	—	—	—	—
Latvia:									
uncultivated meadows:									
river meadows	—	—	3) 2.5	—	—	—	—	—	3) 2.5
marsh meadows	—	—	3) 1.8	—	—	—	—	—	3) 7.1
cultivated meadows	3) 3.1	—	—	—	—	—	3) 3.2	—	—
Lithuania	—	—	—	—	—	2.8	—	—	2.4
Netherlands	—	—	2) 50	—	—	3) 54	2) 59	—	—
Poland:									
ordinary meadows	—	—	3) 2.7	—	—	—	—	—	3) 2.4
low meadows	—	—	3) 2.8	—	—	—	—	—	3) 2.5
improved meadows	3) 3.3	—	—	—	—	—	—	—	3) 2.9
Switzerland	82	—	—	82	—	—	56	—	—
United States 6)	—	—	66	—	—	—	83	—	—
PASTURES:									
Germany 1)	2.9	—	—	—	3.0	—	—	—	—
Poland	—	—	3) 2.6	—	—	—	—	—	3) 2.1
Switzerland	66	—	—	—	—	—	60	—	—
Canada	—	—	92	—	—	—	—	100	—
United States	—	—	73	76	—	—	85	—	—

†) See explanation of the various systems on page 515.

a) Above the average. — b) Average. — c) Below the average. — d) Excellent. — e) Good. — f) Average. — g) Bad. — 1) Including Ostmark (Austria) and Sudetenland. — 2) At the middle of the month. — 3) At the middle of the preceding month. — 4) Sown grasses, including clover. — 5) Tame hay. — 6) Wild hay.

the Plateaux hay-making began generally in the first week of June. The crop is good to very good in quantity. The quality, owing to growth having taken place in wet weather, is rather unsatisfactory.

U. S. S. R.: The area of permanent meadows in the Union is estimated at about 120,000,000 acres. A good crop is forecast in most areas.

At the end of May the cutting of hay had begun in the south and on June 10 had been effected on 3,100,000 acres.

Egypt: Last cutting of bersim was progressing at the end of May. Filling of grains was advancing in areas left to seed formation. Early sown areas were maturing. It was expected that the hot weather prevailing would bear on formation of seeds.

French Morocco: After a sharp drop in temperature at the end of April, the first decade of May was marked by fine rain and mist in the north and centre, snowfalls in the central Atlas region; then followed a period of *chergui* from Mai 10 to 15 and finally the month closed with normal temperatures in the coastal zone with a little *chergui* in the interior. Surface and subterranean moisture reserves are still abundant and water-courses are well filled by the melting of the snows. Growth is well advanced and the fodder supplies abundant on all grazings, even in the mountains. Permanent and rotation fodder crops have been abundant but haymaking and gathering were hampered in the north by too wet weather.

LIVESTOCK AND DERIVATIVES

Livestock in Bohemia-Moravia (Protectorate).

The following table shows the number of livestock in Bohemia-Moravia (Protectorate) on December 1, 1939, compared with the corresponding figures for December 1, 1938.

Classification	1939	1938	Augmentation (+) or diminution (—)	
Horses	273,621	268,102	+	2.1
Asses	88	85	+	3.5
Mules and hinnies	94	108	—	13.0
Cattle, total	2,280,735	2,311,037	—	1.3
cows	1,246,523	1,220,560	+	2.1
Sheep, total	21,992	25,220	—	12.8
ewes	17,315	18,935	—	8.6
Goats	591,669	612,880	—	3.5
Pigs, total	1,607,191	1,949,034	—	17.5
brood sows	217,836	267,440	—	18.5

Slaughterings and Meat Consumption in Poland in 1938.

The following table gives the numbers of animals slaughtered in 1938 according to the monthly reports of the veterinary service on slaughter-houses under veterinary supervision and of the reports of the local authorities on slaughter-houses not under veterinary supervision.

Slaughterings (in thousands).

Years	Cattle			Pigs	Sheep and goats	Horses
	Total	Calves	Other			
1938	3,902.7	2,492.9	1,409.8	5,880.0	750.4	9.0
1937	3,903.2	2,468.4	1,434.8	5,564.3	707.1	10.0
1936	3,598.0	2,340.8	1,257.2	5,012.4	734.0	10.9
1935	3,355.5	2,184.0	1,171.5	4,712.3	672.4	7.5
1934	3,158.6	2,077.1	1,108.5	4,455.3	607.4	5.8
1933	3,551.0	2,142.0	1,409.0	4,195.0	533.0	8.0
1928-1932 (average)	3,536.3	2,204.8	1,331.5	4,219.9	653.0	15.9

In comparison with 1937 there was an increase of 1.7 per cent. in slaughterings of cattle specially of the other and one of 9.0 per cent. in those of horses; slaughterings of sheep and goats increased by 6.1 per cent. and those of pigs by 5.7 per cent.

Taking into account the net export of meat and meat products, the consumption of meat per capita is as follows:

Consumption per capita (lb.).

Years	Total meat	Beef	Veal	Pigmeat	Mutton	Horse-meat
1938	49.34	13.29	4.10	31.26	0.66	0.02
1937	47.44	13.36	4.08	29.37	0.62	0.02
1936	44.60	11.99	3.90	28.06	0.64	0.00
1935	42.37	11.09	3.62	27.09	0.57	0.00
1934	41.03	10.63	3.48	26.35	0.55	0.02
1933	40.37	13.27	3.53	23.06	0.46	0.04
1928-1932 (average)	41.34	13.05	3.35	24.25	0.60	0.09

Average consumption of meat per capita rose by 1.90 lb. or 4.0 per cent. with respect to the previous year. The increase was especially marked for pork 6.5 per cent. and of mutton 7.1 per cent. and slowly for veal (0.5 per cent.). That in beef there was a decrease very slowly of 0.5 per cent.

Wool Production in Australia.

Wool production (greasy basis, wool clip plus skin wool) in Australia in the year ending June 30, 1939 is provisionally forecast at 950,000,000 lb., against 1,006,624,000 lb. in 1937-38 and 982,831,000 lb. in 1936-37. This season's figure is the lowest since 1930-31. Production in the three previous seasons had been steadily rising, as sheep numbers rose to the record of 113,373,000 on December 31, 1937. This year's poor yield is due to the very unfavourable season, with severe drought in the last half of 1938, especially in Victoria. There was also a very dry season in Western Australia and drought until the end of October in New South Wales.

Livestock and Poultry in Yugoslavia. ¹⁾

CLASSIFICATION	END OF DECEMBER			
	1936	1937	1936	1935
<i>Horses</i>	1,264,470	1,248,852	1,216,085	1,200,831
Colts and fillies under 3 years old . . .	208,095	204,618	196,347	189,719
Stallions	16,160	16,684	17,947	17,045
Geldings	520,031	514,279	496,309	490,294
Mares	520,184	513,271	505,482	503,773
<i>Asses</i>	123,058	123,896	123,461	120,925
<i>Mules</i>	19,265	18,826	17,987	18,430
<i>Cattle</i>	4,267,339	4,169,192	4,073,729	3,982,359
Calves under 1 year old	593,379	584,514	564,398	555,027
Cattle 1 year old and above	640,854	624,377	614,457	598,915
Bulls	62,843	63,036	63,543	63,660
Oxen	976,202	951,610	924,099	901,133
Cows and heifers	1,994,061	1,945,655	1,907,232	1,863,624
<i>Buffaloes</i>	37,841	36,340	37,217	36,946
<i>Sheep</i>	10,137,357	9,908,638	9,568,338	9,211,101
Lambs under 1 year old	1,870,792	1,828,823	1,773,987	1,690,502
Rams for service	411,852	400,765	393,659	381,385
Other rams	²⁾	²⁾	245,787	²⁾
Breeding ewes	6,954,203	6,825,255	6,580,922	6,380,770
Other ewes	²⁾ 900,510	²⁾ 853,825	573,983	²⁾ 758,444
<i>Goats</i>	1,890,386	1,901,363	1,905,993	1,895,905
Kids under 1 year old	404,983	412,574	413,211	395,223
Goats	1,485,403	1,488,789	1,492,782	1,500,682
<i>Pigs</i>	3,450,884	3,179,661	3,126,241	2,931,900
Young pigs under 1 year old	1,595,677	1,508,445	1,483,330	1,409,278
Boars	54,694	54,761	55,193	53,745
Brood sows	832,140	783,086	756,618	726,965
Other pigs	968,373	833,369	831,100	741,912
<i>Poultry</i>	22,763,164	22,414,597	21,505,246	20,768,672
Fowls	19,418,935	19,114,371	18,355,777	17,761,172
Geese	1,339,218	1,329,577	1,266,394	1,186,389
Ducks	1,119,948	1,086,415	1,061,563	972,852
Turkeys	885,063	884,234	821,512	848,259

¹⁾ On farms only. — ²⁾ Included under «other ewes». — ³⁾ Including other rams.

The Production and International Trade of Preserved Milk.

The short time that milk in the natural state remains fresh excludes trade between distant countries. To make such trade possible, milk must be preserved. There are a variety of processes for preserving milk. One method is sterilization, by which bacteria are destroyed but the form of the product changed as little as possible. Another is condensation or evaporation, with the addition of sugar, if desired; in this case the milk remains more or less liquid and must be hermetically sealed in a container until it reaches the consumer. The terminology adopted for these products is not uniform between different nations. For example, the term evaporated milk in North America is used for unsweetened, condensed milk, while elsewhere this expression signified a com-

paratively small degree of evaporation. Finally, by removing the water the milk can be completely desiccated. Dried milk is marketed in the form of powder, in blocks or in loaves. The processes of milk preservation may be applied to whole milk, to skim milk or buttermilk. For dried milk, skim milk results in the best conservation. In this survey only milk preserved with partial or total removal of water will be considered. Sterilized milk will be excluded, in so far as national statistics permit it.

The principal preserved milk producing countries are those of the temperate zone, which have a large milch cow population and a scientific and well equipped dairy industry. By means of milk preservation these countries can dispose of sudden excesses of milk production over and above their own normal requirements. Conversely, countries with few or insufficient livestock, particularly tropical countries, can acquire by this means supplies of this nutritious foodstuff.

Statistics of preserved milk production are available for the most important producing countries. In the accompanying table we give, in addition to the latest statistics, corresponding, though often approximate, figures for 1927.

The largest preserved milk producing country is the United States, where there has been a very large increase in the last ten years. By far the greater part of the produce is consumed within the country. Exports in the period here considered have declined considerably, so that only 2 per cent. of the total production is now exported to outlying territories of the United States and foreign countries. Even so, this quantity is so large that the United States occupies second place among preserved milk exporting countries.

The position is reversed in the case of the Netherlands, which is the largest exporting country. There four-fifths of the total production is exported, so that only a small proportion remains for internal consumption.

Production of Preserved Milk in Principal Countries.

(000 lb.)

COUNTRIES	Condensed milk		Dried milk		Total preserved milk	
	1927	1937	1927	1937	1927	1937
United States	1,954,898	2,605,601	168,021	439,098	2,122,919	3,044,699
Netherlands	— ¹⁾	345,044	— ¹⁾	62,354	388,015 ¹⁾	407,398
United Kingdom	— ²⁾	335,115	— ²⁾	44,306	130,073 ²⁾	379,421
Germany	—	—	—	—	76,681	221,484
Canada	89,872 ¹⁾	122,207	15,113 ²⁾	37,082	104,985 ¹⁾	159,289
Australia	46,716	41,604	12,465	16,257	59,181	57,861
Japan	23,995 ²⁾	39,904	1,396 ²⁾	2,657	25,391 ²⁾	42,561
Denmark	—	39,650	—	3,056 ²⁾	66,139	42,706
France	—	28,953	—	7,685 ²⁾	19,842	36,638
New Zealand	6,508	—	14,357	—	20,865	—
Switzerland	—	—	—	—	97,224	19,842
Italy	—	10,426	—	5,525	—	15,951

¹⁾ 1938. — ²⁾ 1935, firms employing more than ten persons. — ³⁾ 1925. — ⁴⁾ 1932. — ⁵⁾ 1936.

Very considerable increases in production have taken place in the United Kingdom and Germany. Only in the case of Switzerland is a very considerable reduction seen; however, the lowest level was reached by 1936 and the figures for 1937 and 1938 show a recovery.

The aggregate world production of preserved milk about 1927 averaged 3,300 million lb. and has now reached about 4,400 million lb.

The classification adopted for the various kinds of preserved milk in foreign trade statistics vary very widely between different countries. In many cases no separate statistics are made of condensed and dried milk. The distinction between these two categories has been made as far as possible in the accompanying trade tables. The statistics of dried milk are however included in those of condensed milk in the case of Germany, Algeria, Italy and (for exports only) France.

The first place among exporting countries is occupied by the Netherlands, which alone supplies more than half of the total world exports. It should be

Exports of Condensed Milk.

(000 lb.)

COUNTRIES	1938	1937	1936	1935	1934	1933	1932	1927/ 1931
Netherlands	¹⁾ 335,375	¹⁾ 367,878	²⁾ 381,749	²⁾ 342,487	²⁾ 352,968	²⁾ 371,055	²⁾ 396,937	²⁾ 373,209
United States	29,129	30,843	25,926	39,113	46,161	37,080	44,800	98,842
Denmark	28,903	27,490	24,333	24,579	19,112	18,376	16,813	16,431
	38,636	37,646	37,011	40,664	48,407	53,718	56,591	52,796
United Kingdom	31,398	36,623	47,942	36,954	26,857	19,965	9,919	23,334
Canada	29,696	28,973	15,223	19,753	21,145	23,069	21,012	24,493
Switzerland	14,407	12,778	11,837	12,816	13,093	20,324	29,491	75,612
Australia	14,246	22,899	13,885	11,801	14,127	19,791	17,469	15,044
France ^(*)	13,252	10,966	10,670	9,696	11,801	11,195	14,370	12,868
Ireland	12,414	13,704	13,484	12,416	12,139	14,148	10,234	8,611
Japan	11,385	7,070	10,838	11,907	7,681	2,998	2,388	928
British Malaya	8,927	11,936	8,651	8,188	7,112	5,743	6,995	9,361
Norway	6,281	5,086	3,997	4,709	3,258	4,109	8,331	16,645
New Zealand	5,417	8,587	6,499	6,206	4,070	1,960	1,812	1,687
Italy ^(*)	1,526	4,037	3,252	3,512	4,180	4,720	4,883	6,429
Belgo-Luxemburg	1,237	1,876	902	2,441	4,539	7,529	6,468	5,516
Chile	586	1,497	1,486	1,345	1,358	880	324	9
TOTAL	582,831	629,889	617,685	586,587	598,008	616,930	648,837	741,815

a) To foreign countries. — b) To Alaska, Virgin Islands, Puerto Rico and Hawaii.

¹⁾ Net weight. — ²⁾ Gross weight. — ³⁾ Including dried milk.

noted that for this country the statistics from 1937 on are not comparable with preceding years because the later figures refer to net weight and the earlier to gross weight. A comparison with corresponding import statistics leaves one to suppose that this change makes a difference of about 20-25 per cent. While the change in the system of measurement does not allow of any precise comparison between the exports of 1937 and of 1936, there is a clear drop between 1937 and 1938.

The exports of the United States and Switzerland have since 1932 remained very much lower than the average of 1927 to 1931. In spite of a certain increase in Swiss exports in 1938, the general trend gives the impression that the exports of these two countries have become more or less stabilized at their present low level. The reason for this decline is different in the two cases. In the United States it was accompanied by a large increase in production and is therefore caused by a development of domestic consumption. In Switzerland on the other hand it coincided with a very sharp falling off in production. Danish exports have also declined to an appreciable extent.

The condensed milk exports of Japan and New Zealand have risen greatly during the period under consideration. Japan's exports are now larger than her average imports in the period of 1927-1931, which is a remarkable result considering the numbers of her milch cows. The figures for British Malaya probably refer exclusively to re-exports.

As in the case of other dairy products, the United Kingdom is the largest importing country; it however also exports on a fairly large, if variable, scale

Imports of Condensed Milk.

(000 lb.)

COUNTRIES	1938	1937	1936	1935	1934	1933	1932	1927-1931
United Kingdom	183,026	189,830	188,699	200,075	234,390	273,795	307,713	298,315
British Malaya	88,185	92,323	66,196	63,615	58,092	45,579	43,259	69,040
Philippines	49,009	42,477	41,692	35,669	34,370	29,295	28,506	29,341
Netherlands Indies	37,754	39,767	29,216	28,078	27,097	24,844	24,456	30,823
Burma	19,945	17,178	22,225	23,594	19,599	19,500	19,216	25,505
India	6,440	11,420	11,543	19,694	16,614	13,508	11,771	10,152
Siam . . . . .	...	25,796	22,289	12,968	9,786	10,223	8,221	6,680
Hawaii ¹⁾	13,993	13,658	11,543	12,968	9,786	10,223	8,221	6,680
Peru	11,532	9,493	7,097	6,063	5,712	3,322	4,956	7,743
Indochina	11,056	10,728	8,250	8,003	6,786	6,424	6,962	7,963
Jamaica	9,899	8,984	7,994	6,790	6,934	5,803	5,240	4,985
Trinidad and Tobago	8,957	8,477	7,509	6,045	5,598	4,683	4,140	3,871
Puerto Rico ¹⁾	8,144	7,555	6,850	5,840	4,050	3,653	3,968	4,579
Algeria ²⁾	7,169	6,023	4,793	5,097	6,164	5,781	6,973	5,265
Alaska ³⁾	6,195	5,851	5,615	5,481	5,276	4,500	4,623	5,172
France	3,135	2,498	2,068	2,983	4,090	5,377	4,134	10,858
Panama . . . . .	...	5,247	4,780	4,268	3,100	2,802	3,179	3,777
" Canal Zone	3,038	2,033	2,540	3,023	2,081	2,718	2,747	2,529
Tunisia	4,557	3,726	3,168	3,098	3,272	3,499	3,362	2,906
Malta	4,519	4,905	4,015	4,063	2,802	2,813	2,244	³⁾ 2,112
French Morocco ⁴⁾	4,352	4,030	3,311	3,133	3,144	3,336	2,818	2,515
Newfoundland	4,279	3,807	3,318	3,203	3,150	2,388	2,533	2,687
Greece	4,222	4,495	4,310	4,709	3,807	2,987	3,768	7,291
Union of South Africa	3,609	6,680	1,982	708	2,544	2,617	1,530	8,589
Venezuela . . . . .	...	3,869	1,407	948	1,003	743	928	1,662
Palestine . . . . .	...	2,216	2,282	1,839	1,054	454	309	470
Germany ²⁾	2,637	3,821	2,500	2,275	4,835	5,809	1,316	8,902
Curaçao ⁴⁾	4,500	3,258	2,811	2,562	2,167	1,616	1,631	2,134
Japan	417	1,859	1,003	924	2,081	2,244	4,839	9,954
TOTAL . . . . .	...	542,004	469,463	464,748	479,598	490,313	515,342	575,820

¹⁾ From United States. ²⁾ Including dried milk. — ³⁾ 1928-1931. — ⁴⁾ All kinds of milk, but principally condensed milk.

home-produced condensed milk. The remaining imports are predominantly taken by tropical countries. In the period considered there have been certain noteworthy changes in imports. While before 1932 the United Kingdom absorbed about the same amount as the remaining countries together, in 1938, following a sharp drop in British imports and several increases in other countries, the imports of the United Kingdom amounted to only a little over a half of those of other countries.

The total international trade in condensed milk may be estimated from export statistics at about 562 million lb. in 1938 against an average of 750 mil-

Exports of Dried Milk.

(ooo lb.)

COUNTRIES	1938	1937	1936	1935	1934	1933	1932	1927-1931
Netherlands	¹⁾ 33,376	¹⁾ 42,999	²⁾ 51,732	²⁾ 28,226	²⁾ 29,421	²⁾ 32,739	²⁾ 29,350	²⁾ 32,011
New Zealand	15,119	16,125	17,242	14,577	17,494	15,679	14,220	12,597
United States	^{a)} 10,192	4,242	3,726	2,743	3,120	2,449	3,558	6,338
	^{b)} 1,431	1,034	979	1,036	496	509	615	434
Australia	5,957	5,007	3,598	699	1,360	3,395	14,974	2,765
Canada	5,379	4,310	5,240	4,705	4,691	4,632	3,748	5,426
Ireland	1,294	937	240	265	397	9	60	366
Denmark	725	888	575	227	388	503	604	642
TOTAL	73,473	75,542	83,332	52,478	57,367	59,915	67,129	60,579

a) To foreign countries. — b) To Alaska, Virgin Islands, Puerto Rico and Hawaii.

¹⁾ Net weight. — ²⁾ Gross weight.

lions in 1927-1931, and from import statistics at respectively about 419 million lb. and 622 millions. In spite of this discrepancy, a heavy decline in world trade is clearly emphasized.

For dried milk the number of large exporting countries is smaller than in the case of condensed milk. The Netherlands are again the largest exporter. The comparison between 1937 on and preceding years is again difficult owing to the change in the system of calculation. The decline between 1937 and 1938, however, is even more marked than in the case of condensed milk.

The other four important exporting countries are extra-European countries. Switzerland, in her trade statistics, apart from the category "Milk, condensed and sterilized, etc.", only gives one other category "Lactic flour", which is a more elaborate product than simple dried milk and the export of which in 1938 amounted to 2,897,000 lb.

The United Kingdom imports of dried milk are normally much larger than those of any other country, an exception being the year 1936 when the imports of the United States rose to an extraordinary extent. The imports of the United Kingdom, after declining from 1931 to 1935, have in the last few years risen very considerably, contrary to the trend of condensed milk. The other fairly large dried milk importing countries are not in general the same as the condensed

Imports of Dried Milk.

(ooo lb.)

COUNTRIES	1938	1937	1936	1935	1934	1933	1932	1927-1931
United Kingdom	39,765	33,230	27,494	25,170	28,636	32,007	36,570	27,856
Belgo-Luxemburg	7,081	7,319	8,790	2,617	1,678	2,044	1,367	(¹) 445
France	2,161	1,938	2,130	1,980	2,630	3,567	3,896	(²) 4,050
Palestine	—	2,066	1,206	952	437	106	57	42
Hawaii	787	615	567	419	282	313	348	231
British Malaya	825	794	591	542	465	379	414	514
Canada	703	950	267	37	137	101	119	170
Puerto Rico	626	529	531	613	214	196	267	203
Mexico	518	677	362	207	564	494	551	(²) 558
Sweden	—	483	381	130	53	386	558	414
Panama	—	368	333	123	132	117	130	121
» Canal Zone	300	225	348	245	194	170	159	174
Egypt	428	335	364	306	293	220	174	...
Australia	423	298	0	280	196	137	895	747
United States	82	2,806	24,460	2,743	7	562	591	4,451
TOTAL . . . . .	...	52,633	67,824	36,364	35,918	40,799	46,096	39,956

¹) 1929-1931. — ²) 1928-1931. — ³) 1930-1931.

milk importing countries. This is explained principally by the fact that the conservability of dried milk is lower.

The international trade in dried milk has shown an opposite tendency to that of condensed milk, rising, according to the export statistics, from an average of 62 million lb. in 1927-1931 to 74 million lb. in 1938 and, according to the import statistics, from an average of 43 million lb. to 59 million lb. in 1938.

W. SCHUBRING.

World Poultry Statistics and Trade in Eggs in the last nine years.

I. — Statistics of Poultry.

In the contribution of the International Institute of Agriculture to the Fourth World Poultry Congress, which may be considered as a first outline of international poultry statistics (¹), emphasis was laid on the scarcity of poultry statistics throughout the world and on the serious difficulties encountered in

(¹) Contribution au IV^{ème} Congrès Mondial d'Agriculture: A) Données statistiques sur la production et le commerce de la volaille et des œufs dans différents pays; B) Renseignements techniques sur l'état actuel de l'aviculture dans différents pays. Rome, 1930.

comparing the existing data. Many countries that are very important producers of poultry have no relative statistics whatever, while others publish approximate estimates from time to time without indication of date. However, there have been some notable improvements, and, despite the gaps and imperfections, it is possible to arrive at some general indications regarding the development of poultry culture in recent years.

THE CONDITION OF POULTRY STATISTICS IN THE PRINCIPAL PRODUCING COUNTRIES.

Attention may for the present be limited to the most important producing countries, taking them in the order of their poultry numbers.

The first place amongst the producing countries is taken by the United States, which publish on January 1 of each year the number of fowls of three months old and over on agricultural holdings. Owing to the small relative importance of the other species of poultry—geese, ducks and turkeys—this country does not publish annual statistics regarding them. On the other hand, the situation of poultry farming throughout the year is statistically delineated by the Bureau of Agricultural Economics of the Department of Agriculture in Washington in a series of well coordinated estimates: the average number of laying hens per farm flock (on the first day of each month), the average number of chicks and young chickens on hand per farm flock (on the first day of each month) and other statistics concerning prices and the commercial movement of poultry products.

The second rank amongst the world's poultry producers is taken by China, which does not publish annual statistics of poultry numbers. Somewhat incomplete data for the two years 1934 and 1935 only are available. Although these data are not complete they allow at least an approximate determination of the order of importance of poultry in China. As that country is the largest exporter of egg products in the world and a large exporter of eggs in the shell, regular statistics of poultry would be of the greatest importance, not only for China itself but for other countries having commercial relations with it.

The third country in order of importance, the U. S. S. R., ceased publishing poultry statistics after 1929, but the official estimate of 1938 indicates that the numbers in that year were approximately at the 1929 level.

The fourth country, Germany, publishes complete statistics of all species at the beginning of December each year. From 1934 there have been introduced for numbers of fowls two new statistical categories of great value for forecasts of development in the months following the estimate: (1) laying hens of one year and over; (2) young hens under one year. In the present state of poultry culture, in fact, the total numbers have not an absolute importance; the composition by age classes and, if possible, by breeds is, however, of the highest importance.

The fifth place is taken by the United Kingdom, which also regularly publishes statistics, on June 1 of each year, distinguishing two categories of poultry: 1) of age under six months and 2) of age over six months. In recent years a second estimate, at the end of the year, has been instituted, though

for Northern Ireland a total only is given. This second estimate is of the greatest utility, given the ease and rapidity of changes in poultry numbers in the course of the year. Two annual estimates are made by only one other country, Lithuania, which is an exporter of eggs.

Next in order as regards numbers of poultry is France, which, however, does not regularly publish statistics of poultry. The numbers of poultry in Italy, according to the unanimous opinion of various experts, are probably of the same order as those of France but meantime the Italian Government does not publish the relative statistics.

In order of importance follows Canada, which publishes regularly on June 1 of each year complete statistics of all species of poultry. Data for the subgroup of laying hens are also published regularly.

Only slightly inferior to those of Canada are the numbers in Japan, which publishes regularly the statistics of poultry as on July 1 of each year. As subgroups Japan publishes statistics of 1) those under six months and 2) those over six months, both for fowls and for ducks.

The subsequent order, as regards numbers of poultry, of the various countries is uncertain owing to the lack of regular annual statistics. In all probability there follow Poland, Romania, French Morocco, the Philippines and Argentina. Of these countries Poland has only an estimate for 1931 of laying hens, Romania a census in 1934, on February 1, referring to "Poultry that have passed the winter", French Morocco only estimates, the Philippines annual enumerations and Argentina a census in 1930.

Numbers of Poultry in the Principal Countries in 1932 and 1938.

(millions).

Countries	Fowls		Geese		Ducks		Turkeys	
	1932	1938	1932	1938	1932	1938	1932	1938
United States	444.5	412.6	...	...	...	...	¹⁾ 5.4	...
China	¹⁾ 278.4	...	¹⁾ 13.2	...	¹⁾ 69.3	...	...	...
U. S. R. R.	²⁾ 198.2	²⁾ 200.0	²⁾ 10.4	...	²⁾ 4.5	...	²⁾ ⁴⁾ 0.9	...
Germany	84.2	88.5	5.8	5.9	3.5	2.7	...	⁵⁾ 0.7
United Kingdom	73.5	69.1	0.7	0.7	3.5	3.0	1.0	1.4
France	²⁾ 69.3	...	²⁾ 3.8	...	²⁾ 4.6	...	²⁾ 2.2	...
Canada	59.8	53.8	0.9	0.8	0.8	0.6	2.5	2.0
Japan	54.3	48.4	...	...	0.5	0.5	...	...
Poland	⁶⁾ 50.0	...	⁷⁾ 12.0	...	⁷⁾ ⁸⁾ 3.0	...	...	...
Romania	¹⁾ 51.4	...	¹⁾ 5.6	...	¹⁾ 7.4	...	¹⁾ 2.2	...
French Morocco	⁸⁾ 50.0	⁵⁾ 50.0	0.0	0.0	0.0	0.0	0.0	0.0
Philippines	23.8	⁵⁾ 43.0	...	...	...	...	...	...
Argentina	¹⁰⁾ 37.7	...	¹⁰⁾ 0.4	...	¹⁰⁾ 1.4	...	¹⁰⁾ 1.9	...

¹⁾ 1934. — ²⁾ 1929. — ³⁾ Poultry in general. — ⁴⁾ Turkeys and other poultry excluding fowls, geese and ducks. — ⁵⁾ 1937. — ⁶⁾ 1931. — ⁷⁾ 1924. — ⁸⁾ Ducks, turkeys, and guinea fowl. — ⁹⁾ 1933. — ¹⁰⁾ 1930.

As regards the interpretation of the table the greatest care is necessary. Comparisons between countries are only indicative of the relative importance as regards numbers. Horizontally the comparison is permissible in the strictest sense for the United States, Germany, the United Kingdom, Canada and Japan.

In the seven years considered the numbers of fowls in the United States have oscillated between a maximum of 444.5 millions at the end of 1932 and a minimum of 386.6 millions at the end of 1937; thus the numbers at the end of 1938 indicate a marked recovery. For Germany the figure for 1938 represents the maximum for fowls in the period 1932-38, while that for 1932 is the minimum. While the numbers of geese remain practically constant those of ducks show a certain tendency to decrease in this country.

The numbers of fowls in the United Kingdom oscillated between 69.1 millions in 1937 and 78.5 millions in 1934; the figure for 1938 practically coincides with the minimum of 1937. As in Germany, the numbers of geese in the United Kingdom remained fairly constant while those of ducks showed a downward tendency. The number of turkeys on the contrary increased slowly from 1935 to 1938; in the period under consideration the figure for 1938 was exceeded only in 1933.

The numbers of fowls in Canada oscillated between a minimum of 53.1 millions in 1935; and 59.8 millions in 1932; the figure for 1938 is thus only a little above the minimum. The number of geese and ducks in Canada diminished almost steadily from 1933 to 1938, the latter year being the minimum for both species. Turkeys, which diminished in numbers from 1934 to 1937 showed a slight recovery in 1938.

For Japan the figures indicated in the above table show a maximum in 1932 and a minimum in 1938 for the period considered.

In the following table are brought together the data for several countries of special importance for world trade even though their numbers are not very large. Numerically the first place is taken by the Netherlands, which is the second exporter of eggs in shell. This country regularly publishes statistics of poultry (in May-June) for fowls and ducks, with two sub-groups: a) "born within the year" and b) "others".

The largest egg exporter in the world is Denmark, which has relatively small numbers of poultry but with high laying capacity. The fact that the population is relatively small allows this country to export very large quantities of eggs. It has regular statistics of poultry. It may be noted that in 1929 the Danish statistics also indicated the superior breeds of fowl.

The third place is taken by Belgium, a large exporter of eggs, which has not, however, published statistics except in 1929 (only for adults) and in 1935.

In this group enters also the former Czechoslovakia, which began to publish annual statistics in 1935. For fowls there are three sub-groups: (a) chickens (b) cocks and (c) hens, while all the other species are subdivided only into young and adults. Despite the high production per hen it was necessary to import eggs from abroad.

An important place is occupied by Hungary, which is a large exporter of eggs. It has published statistics only for two years: 1928 and (at a different season) 1935.

Given the irregularity of the series it is possible to make horizontal comparisons only for two countries in the preceding group, namely, Yugoslavia and Ireland. In the former, which is an agricultural country with a not

Numbers of Poultry in Countries with small Production but of particular importance for the Trade in Eggs, in 1932 and 1938.

(millions)

Countries	Fowls		Geese		Ducks		Turkeys	
	1932	1938	1932	1938	1932	1938	1932	1938
Netherlands	¹⁾ 34.5	29.6	—	—	0.7	0.9	—	—
Denmark	²⁾ 26.6	27.9	²⁾ 0.4	...	²⁾ 1.0	...	²⁾ 0.1	...
Belgium . . . . .	...	²⁾ 33.8	—	—	²⁾ 0.2	...	—	—
Former Czechoslovakia . . .	³⁾ 27.1	32.1	²⁾ 7.6	6.6	²⁾ 1.7	3.0	²⁾ 0.2	0.2
Hungary . . . . .	...	²⁾ 17.9	...	²⁾ 2.3	...	²⁾ 1.4	...	²⁾ 0.4
Yugoslavia . . . . .	...	19.4	...	1.3	0.9	1.1	...	0.9
Spain	⁴⁾ 22.0	...	...	...	...	...	...	...
Ireland	18.0	16.0	...	0.9	2.3	1.6	...	1.1
Bulgaria	²⁾ 11.8	...	²⁾ 0.3	...	²⁾ 0.3	...	²⁾ 0.3	...
Sweden	11.0	...	...	0.1	...	...	...	...
Turkey	²⁾ 14.3	⁴⁾ 18.4	²⁾ 0.2	...	²⁾ 0.1	...	²⁾ 0.8	²⁾ 0.9
Egypt	⁴⁾ 11.9	...	⁴⁾ 1.4	...	⁴⁾ 1.0	...	⁴⁾ 0.3	...
Australia	²⁾ 15.2	²⁾ 15.5	²⁾ 0.1	²⁾ 0.1	²⁾ 0.7	²⁾ 0.6	²⁾ 0.5	²⁾ 0.4

¹⁾ 1934. — ²⁾ 1933. — ³⁾ 1935. — ⁴⁾ 1929. — ⁵⁾ 1930. — ⁶⁾ 1937. — ⁷⁾ 1927. — ⁸⁾ 1936.

very intensive agriculture and abundance of cereals, the numbers have all increased while in Ireland, which imports cereals, all the numbers show a tendency to decrease. It is very probable that the position in Yugoslavia is also characteristic of the other Danubian countries.

From the brief examination of the numbers in the most important countries having poultry statistics it is seen that the numbers do not undergo such very great variation as might at first sight appear likely. The countries having an abundance of cereals at their disposal do not find it economically convenient to increase to any unusual extent their numbers of poultry. The egg-importing countries, though desirous of freeing themselves from the necessity of importing, cannot increase their numbers of poultry, as this means feeding a larger number and increasing imports of cereals, but are endeavouring—and this is characteristic of poultry culture in recent years—to maintain the numbers constant or even diminish them, while improving the breeds and thus increasing the unit production.

II. — Production per Hen and total Production of Eggs in certain countries.

The statistics of egg production in the different countries, both per hen and totals, are of great interest to Governments, poultry farmers, traders and consumers. Although there are real bases for such statistics in the controlled results of the laying competitions and in the diligent records of poultry establishments and of some enthusiastic poultry farmers, it is as a whole generally admitted to be extremely difficult to reach the point of ascertaining the average production per hen per year for any country. The same may be said for the average weight of eggs in any country for any year. The difficulty obviously depends on the large number of holdings in which the poultry are

distributed and on the great variety of breeds and consequent differences in production.

Nevertheless the countries that publish estimates of the numbers of laying hens and relative yield per hen per year are by no means few.

The highest average of eggs per hen per year was attained by the Netherlands in 1938 with the figure of 160 eggs. This is an extremely important result, due certainly to the energetic measures taken by the Government to rationalize poultry culture. For a country to attain such an average means that the unit-yields of individual farmers are very high and that the valuable breeds are widely distributed throughout the country. In the Netherlands themselves in 1937 the average per hen per year was 145 eggs, which had seemed till then to be an unattainable figure. A very high unit-yield was also obtained in Japan for the season from July 1937 to July 1938 with the figure of 135 eggs per hen. Unit-yields of 132 eggs per hen were reached by the Netherlands in 1936 and Denmark in 1935. The average of 120 was attained or exceeded by the former Czechoslovakia (129 in 1936 and 125 in 1937), Ireland (125 in 1936), Luxemburg (123 in 1934), Northern Ireland and England and Wales. Unit-yields above 100 but below 120 have been recorded by Scotland, Belgium, Estonia, Latvia, Canada, the United States despite the vastness of their territory, Palestine and Karafuto. Switzerland estimates the average production per hen at 100, while Germany, which for the preceding years had an average of only 90, reached an average unit-yield of 92 in 1937.

After estimating the average yield per hen per year, the calculation of the total production of eggs is generally based on the number of laying hens, that is, on a determined proportion of the total numbers of hens or on the total number, according to the date of the enumeration. Statistical and livestock experts usually consult both the poultry farmers and the traders in poultry products in order to bring the estimates as close as possible to the facts. The situation of poultry culture varies from country to country and from region to region and the methods of estimate also vary very much from country to country. As a survey of the method adopted by the different countries that carry out enumerations of poultry may be useful both to Governments and to students of poultry problems in general, the International Institute of Agriculture proposes to make such methods the object of a special study.

In the following table are brought together the statistics of egg production in the principal producing countries having such statistics.

The most salient feature of this table is the absolute preponderance of the United States. The production of eggs in that country exceeds the total production of all the other thirteen countries considered.

In reality the relative importance of the production of the United States is less if it is taken into consideration that in the table there do not appear (since they do not publish statistics of production) China, the U. S. S. R., Italy, Poland, Romania, Yugoslavia, Hungary and Bulgaria, which have all a large production of eggs.

The three years of lowest production in the United States, 1934, 1935 and 1936, are certainly to be related to the disastrous drought of the years 1934 and 1936.

Production of Hens' Eggs in the principal producing Countries.

(millions)

Countries	1932	1933	1934	1935	1936	1937	1938
United States	36,298	35,514	34,429	33,305	33,996	37,647	36,998
Germany	6,200	6,200	6,200	6,200	...	6,400	...
France	¹⁾ 5,276	...	...	...	...	6,200	...
United Kingdom	3,882	4,072	4,058	3,902	3,782	3,691	...
Japan	3,559	3,409	3,535	3,609	3,537	3,643	3,472
Canada	2,754	2,667	2,679	2,682	2,634	2,633	2,561
Netherlands	2,125	1,920	2,040	1,860	1,850	1,990	2,150
Denmark	1,160	1,478	...	1,580	1,810	2,047	2,037
Belgium	2,300	2,070	2,070	1,601	1,610	1,507	1,435
Spain	¹⁾ 1,677	1,678	...	...	...	...	...
Ireland	1,215	1,233	1,136	1,094	1,121	1,058	...
Former Czechoslovakia . . . . .	...	...	...	...	1,943	1,973	...
French Morocco . . . . .	...	1,000	1,000	1,000	1,600	1,000	...
Turkey . . . . .	...	...	937	1,041	943	1,113	...

¹⁾ 1929.

For the other countries in the table it may be observed that the estimate for Germany remains very constant, with an increase of 200 millions in 1937, due to the increase in the yield per hen in consequence of the numerous measures taken by the Government for the improvement and rejuvenation of the stock.

Between 1932 and 1937 the production of the United Kingdom showed a distinct tendency to decrease.

In Japan and Canada production remains fairly constant but in 1938 both had relatively low totals. The distinct parallel recovery in the production of the Netherlands and Denmark between 1936 and 1938, while that of Belgium showed a movement in the opposite direction, is noteworthy; it is reflected in the exports of these three countries.

III. — World Trade in Eggs in the Shell.

Of all the statistics concerning poultry culture those of trade in eggs and egg products are most suitable for international comparisons. From the commercial movement of one country or group of countries it is possible to deduce various indications of the development of poultry culture in the respective country or countries.

For the examination of the commercial movement of eggs in shell 26 exporting countries and nine importing countries have been selected. The quantities exported or imported respectively by these two groups of countries are sufficiently characteristic of the world trade movement. The statistical data considered cover the period of nine years from 1930 to 1938.

I. — COUNTRIES EXPORTING EGGS IN THE SHELL.

The total exports of the twenty-six countries considered show a diminution from 1930 to 1935 from 1,061,800 thousand lb. to 686,900 thousand lb. Having reached a minimum in 1935, exports began to increase again, attaining 810,590 thousand lb. in 1938. The exports of 1938 are lower than those of 1930 by 251,210 thousand lb., equivalent to about 1,760 million eggs. Shipments in 1938 are thus 11.2 per cent. below the 1930-34 average but exceed by 18 per cent. the minimum of 1935, by 7.4 per cent. the shipments of 1936 and by hardly 1.0 per cent. those of 1937.

Passing to the examination of the individual groups, it is seen that the group of countries most important for world exports, namely, the principal Northwestern European exporters, in 1938 showed a record export for the period under consideration, exceeding by 8 per cent. the 1930-34 average. With respect to 1937, only the Netherlands and Ireland showed a further increase of exports in 1938 while Denmark and the Belgo-Luxemburg Economic Union reduced their exports by 3.4 per cent. and 35.5 per cent. respectively. If 1932 is excepted, the largest exporter in the world, Denmark, showed a decrease in its exports in 1938 for the first time since 1930. The second exporter, the Netherlands, showed in 1938 the largest export of the period under consideration.

The second group, that of the Eastern and Southeastern European countries and the U. S. S. R., rapidly gained ground in 1938, exceeding its shipments of 1937 by at least 5.9 per cent., thanks particularly to Poland and Hungary. The U. S. S. R. had no export of eggs in 1938, while Yugoslavia exported quantities higher than those either of 1937 or of 1936. Of all this group only Hungary was able in 1938 to exceed also the 1930-34 average. This was in large part due to the Hungarian exports to the United Kingdom, which is the largest purchaser of Hungarian eggs. While in the preceding years Hungary exported to the United Kingdom only very small quantities, or none at all (as in 1932 and in 1936); Hungary's exports to that country in 1938 amounted to at least 13,313 thousand lb., more than 42 per cent. of the total Hungarian exports.

An exceptional recovery is shown by the group comprising France and Italy; this group quintupled its 1937 exports in 1938 and its shipments in 1938 were the highest in the period from 1933 inclusive.

The exports in 1938 of the group of three Baltic countries, which are secondary exporters, represent an absolute record for the period 1930-38, thanks particularly to Lithuania. During 1938 the Governments of Estonia and Latvia took very strong measures to promote the export of eggs. The Estonian Government, in order to protect poultry farmers, established a minimum "guaranteed" price by means of a special fund. When internal prices are lower than world prices an export premium is paid to the exporters. When export prices are higher than world prices half of the difference is paid into the "fund" for making prices uniform. The Latvian Government on the other hand has entrusted the collection and export of eggs to a single body, the Central Union of Latvian Dairies.

Exports of the Fennoscandian countries are also in full development and in 1938 established a record for the period considered. In Finland an export pre-

mium on eggs has been introduced. This premium varies with the world price and is fixed by the Government. In Sweden also there is an export premium. All the measures emanating from the Governments of this group have the object of improving the quality of the eggs for the purpose of competing with other exporters.

The exports of the American group show rapid development, particularly through the efforts of Argentina, which on the average of 1930-34 exported only 3,627 thousand lb., while in 1938 its exports increased to 13,537 thousand lb. The exports of the United States in 1938 were lower than in 1937, 1936 or the average. The reduction of shipments from the United States coincides with the commencement of Argentine exports. In fact, in 1930 the largest purchaser of United States eggs was Argentina. With the increase in production in the latter country North American exports in that direction fell off sharply.

The group formed by China and Turkey showed very great reductions in 1938. The former country diminished its exports in consequence of the war and the latter because of the heavy competition on the Central and Western European markets and particularly because of the loss of the Spanish market. The exports of China in 1938 represented only 54.7 per cent. and those of Turkey 15.2 per cent. of the average.

Reductions of almost the same extent as those of the China-Turkey group were also experienced by the African group, comprising French Morocco and Egypt, of which the total exports of 1938 represented hardly 48.7 per cent. of the average.

Australia regularly increased its shipments from 1930 to 1934 and then showed a regular decrease until 1938.

The following table shows the relative importance of each country with respect to the general total.

The most salient feature is the absolute preponderance in world exports of the group of Northwestern European exporters, with a share of 58.3 per cent. of the total. The second group in relative importance is that of the Eastern and Southeastern European countries, of which the participation in world exports has steadily increased from 1935, and which in 1938, with 22.5 per cent. of the total, almost regained the position of 1933. The percentage contribution of France and Italy was in 1938 the highest since 1933. The share of these two countries in the export trade showed a regular decrease from 1932 to 1937, when it touched its minimum. The relative importance of the Baltic and Fennoscandian groups in 1938 was exactly the same as in 1937, when it was much above the average. The group formed by the United States, Argentina and Uruguay gained ground in 1938, when it was responsible for 2.8 per cent. against 1.5 per cent. in 1937 and 2.0 per cent. on the average.

Even if the six preceding groups of countries as a whole acquired added importance in 1938 or at least maintained their 1937 position, the China-Turkey group, the French Morocco - Egypt group and also Australia lost ground both with respect to 1937 and with respect to the average. In fact, their total percentage contribution was only 9.3 per cent. in 1938 against 13.5 per cent. in 1937 and 18.2 per cent. on the average of 1930-34.

As regards the individual countries the largest exporter of eggs in the shell in 1938 remained Denmark, with 26.5 per cent. of the total. It should be observ-

I A). — *World Trade in Eggs*

(thousand)

COUNTRIES	1938	1937	1936	1935	Average 1930-34
Major Northwestern European exporting countries:					
Denmark	214,685	222,241	193,146	161,524	145,411
Netherlands	194,642	167,902	142,720	136,251	164,241
Ireland	45,068	40,656	49,057	50,511	66,687
Belgo-Luxemb. Economic Union	17,869	27,706	26,073	24,148	61,035
<i>Total . . .</i>	<i>472,264</i>	<i>458,505</i>	<i>410,996</i>	<i>372,434</i>	<i>437,374</i>
Eastern and Southeastern European exporting countries and U. S. S. R.:					
Poland	64,137	58,157	53,169	50,601	81,723
Bulgaria	33,466	38,616	38,559	28,164	39,944
Yugoslavia	29,147	27,039	25,577	24,546	45,608
Hungary 1)	31,047	25,266	15,285	18,201	23,183
Romania	24,910	22,907	26,475	15,213	26,933
U. S. S. R.	—	476	220	20	17,919
<i>Total . . .</i>	<i>182,707</i>	<i>172,460</i>	<i>159,285</i>	<i>136,745</i>	<i>235,310</i>
France and Italy:					
France	5,091	851	2,443	2,760	13,189
Italy	2,094	523	87	570	10,533
<i>Total . . .</i>	<i>7,185</i>	<i>1,374</i>	<i>2,530</i>	<i>3,330</i>	<i>23,722</i>
Minor Baltic exporting countries:					
Lithuania	10,556	9,322	8,362	3,331	4,985
Estonia	5,330	5,296	5,738	6,302	3,522
Latvia	2,106	3,122	1,239	397	134
<i>Total . . .</i>	<i>17,992</i>	<i>17,740</i>	<i>15,339</i>	<i>10,030</i>	<i>8,641</i>
Fennoscandian countries:					
Finland	17,372	19,681	17,086	19,246	12,573
Sweden	11,828	9,077	5,745	6,824	8,150
Norway	3,487	2,757	2,656	1,382	2,645
<i>Total . . .</i>	<i>32,687</i>	<i>31,515</i>	<i>25,487</i>	<i>27,452</i>	<i>23,368</i>
North and South America:					
United States	3,460	3,929	3,469	2,996	10,707
Argentina	13,536	5,455	7,740	10,934	3,627
Uruguay	5,438	2,613	5,360	9,612	3,825
<i>Total . . .</i>	<i>22,434</i>	<i>11,997</i>	<i>16,569</i>	<i>23,542</i>	<i>18,159</i>
China and Turkey:					
China	34,013	55,396	55,320	41,170	62,218
Turkey	6,416	6,687	12,730	13,416	42,082
<i>Total 1) . . .</i>	<i>40,429</i>	<i>62,083</i>	<i>68,050</i>	<i>54,586</i>	<i>104,300</i>
North African countries:					
French Morocco	13,732	21,796	22,472	22,995	20,702
Egypt	4,400	6,270	8,388	6,442	16,538
<i>Total . . .</i>	<i>18,132</i>	<i>28,066</i>	<i>30,860</i>	<i>29,437</i>	<i>37,240</i>
Australia	16,764	18,693	25,629	29,373	24,330
General total . . .	810,594	802,433	754,745	686,927	912,444

1) Eggs in the shell and egg products.

in the Shell. — Exports.

1b.)

1934	1933	1932	1931	1930	% 1938			
					1937 = 100	1936 = 100	1935 = 100	Average 1930-34 = 100
155,091	147,480	152,218	134,251	118,806	96.6	111.2	132.9	147.6
141,763	125,611	176,503	190,037	187,291	115.9	136.4	142.9	118.5
57,343	57,366	64,205	76,220	78,301	110.9	91.9	89.2	67.6
31,121	44,111	82,413	78,090	69,441	64.5	68.5	74.0	29.3
385,318	374,568	475,339	478,598	453,839	103.0	114.9	126.8	108.0
46,802	51,821	82,458	106,033	121,500	110.3	120.6	126.7	78.5
32,042	34,547	41,456	49,314	42,359	86.7	86.8	118.8	83.8
26,291	40,310	36,356	57,997	67,085	107.8	114.0	118.7	63.9
20,957	25,388	14,103	26,414	29,051	122.9	203.1	170.6	133.9
16,221	17,996	34,849	28,512	37,088	108.7	94.1	163.7	92.5
2,657	4,343	15,831	45,058	21,707	...	...	...	...
144,970	174,405	225,053	313,328	318,790	105.9	114.7	133.6	77.6
2,499	821	2,306	15,104	45,217	598.3	208.4	184.5	38.6
1,572	2,197	8,539	19,807	20,551	400.5	2,398.0	367.1	19.9
4,071	3,018	10,845	34,911	65,768	523.0	283.9	215.8	30.3
2,307	3,440	5,429	7,229	6,522	113.2	126.2	316.9	211.7
4,564	3,010	3,098	3,296	3,643	100.7	92.9	84.6	151.3
102	288	245	37	0	67.4	170.0	530.4	1,565.9
6,973	6,738	8,772	10,562	10,165	101.4	117.3	179.4	208.2
21,944	21,993	13,816	4,156	955	88.3	101.7	90.3	138.2
6,895	6,690	10,148	6,735	10,284	130.3	205.9	173.3	145.1
2,284	3,871	3,756	1,730	1,584	126.5	131.3	252.2	131.8
31,123	32,554	27,720	12,621	12,823	103.7	128.2	119.1	139.9
3,187	3,086	3,835	12,705	30,720	88.0	99.7	115.5	32.3
4,123	4,003	4,100	4,309	1,602	248.2	174.9	123.8	373.2
5,224	6,548	4,312	2,025	1,015	208.2	101.5	56.6	142.2
12,534	13,637	12,247	19,039	33,337	187.0	135.4	95.3	123.5
44,030	48,869	49,037	84,234	84,922	61.4	61.5	82.6	54.7
23,011	39,488	54,572	53,940	39,397	96.0	50.4	47.8	51.2
67,041	88,357	103,609	138,174	124,319	65.1	59.4	74.1	38.8
21,370	21,849	19,712	18,785	21,794	63.0	61.1	59.7	66.3
13,061	19,497	24,378	14,606	11,146	70.2	52.5	68.3	26.6
34,431	41,346	44,090	33,391	32,940	64.6	58.8	61.6	48.7
36,225	32,259	26,986	16,374	9,807	89.7	65.4	57.1	68.9
722,686	766,882	934,661	1,056,998	1,061,788	101.0	107.4	118.0	88.8

I B). — *World Trade in Eggs in the Shell. — Exports.*

Relative importance of the principal egg-exporting countries and groups of countries.
(Percentages).

COUNTRIES	1938	1937	1936	1935	Average 1930-34	1934	1933	1932	1931	1930
	%	%	%	%	%	%	%	%	%	%
Major Northwestern European exporting countries:										
Denmark	26.5	27.7	25.6	23.5	15.9	21.5	19.2	16.3	12.7	11.2
Netherlands	24.0	20.9	18.9	19.8	18.0	19.7	16.4	18.9	18.0	17.6
Ireland	5.6	5.1	6.5	7.4	7.3	7.9	7.5	6.9	7.2	7.4
Belgo-Luxemb. Economic Union	2.2	3.4	5.3	3.5	6.7	4.3	5.8	8.8	7.4	6.5
Total	58.3	57.1	54.5	54.2	47.9	53.4	48.9	50.9	45.3	42.7
Eastern and Southeastern European exporting countries and U. S. S. R.:										
Poland	7.9	7.3	7.1	7.4	8.9	6.5	6.8	8.9	0.0	11.5
Bulgaria	4.1	4.8	5.1	4.1	4.4	4.4	4.5	4.4	4.6	4.0
Yugoslavia	3.6	3.4	3.4	3.6	5.0	3.6	5.3	3.9	5.5	6.3
Hungary 1)	3.8	3.1	2.0	2.6	2.5	2.9	3.3	1.5	2.5	2.7
Romania	3.4	2.8	3.5	2.2	3.0	2.2	2.3	3.7	2.7	3.5
U. S. S. R. . . . .	...	0.1	0.03	0.003	2.0	0.4	0.6	1.7	4.3	2.0
Total	22.5	21.5	21.1	19.9	25.8	20.0	22.8	24.1	29.6	30.0
France and Italy:										
France	0.6	0.1	0.3	0.4	1.4	0.4	0.1	0.3	1.4	4.3
Italy	0.3	0.1	0.01	0.1	1.2	0.2	0.3	0.9	1.9	1.9
Total	0.9	0.2	0.3	0.5	2.6	0.6	0.4	1.2	3.3	6.2
Minor Baltic exporting countries:										
Lithuania	1.3	1.1	1.1	0.5	0.5	0.3	0.4	0.6	0.7	0.6
Estonia	0.7	0.7	0.7	0.9	0.4	0.6	0.4	0.3	0.3	0.4
Latvia	0.2	0.4	0.2	0.1	0.01	0.01	0.04	0.03	0.004	0.0
Total	2.2	2.2	2.0	1.5	0.9	0.9	0.8	0.9	1.0	1.0
Fennoscandian countries:										
Finland	2.1	2.5	2.3	2.8	1.4	3.0	2.8	1.5	0.4	0.1
Sweden	1.5	1.2	0.8	1.0	0.9	1.0	0.9	1.1	0.6	1.1
Norway	0.4	0.3	0.3	0.2	0.3	0.3	0.5	0.4	0.2	0.2
Total	4.0	4.0	3.4	4.0	2.6	4.3	4.2	3.0	1.2	1.4
North and South America:										
United States	0.4	0.5	0.5	0.4	1.2	0.4	0.4	0.4	1.2	2.9
Argentina	1.7	0.7	1.0	1.6	0.4	0.6	0.5	0.4	0.4	0.2
Uruguay	0.7	0.3	0.7	1.4	0.4	0.7	0.9	0.5	0.2	0.1
Total	2.8	1.5	2.2	3.4	2.0	1.7	1.8	1.3	1.8	3.2
China and Turkey:										
China	4.2	6.9	7.3	6.0	6.8	6.1	6.4	5.2	8.0	8.0
Turkey	0.8	0.8	1.7	1.9	4.6	3.2	5.1	5.8	5.1	3.7
Total	5.0	7.7	9.0	7.9	11.4	9.3	11.5	11.0	13.1	11.7
North African countries:										
French Morocco	1.7	2.7	3.0	3.4	2.3	3.0	2.8	2.1	1.8	2.1
Egypt	0.5	0.8	1.1	0.9	1.8	1.8	2.6	2.6	1.4	1.0
Total	2.2	3.5	4.1	4.3	4.1	4.8	5.4	4.7	3.2	3.1
Australia	2.1	2.3	3.4	4.3	2.7	5.0	4.2	2.9	1.5	0.9
General total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

1) Eggs in the shell and egg products.

ed that with respect to 1937, when its share was 27.7 per cent., there was an appreciable decline. The second place as exporter is taken by the Netherlands, with 24.0 per cent. of the total, the highest reached by that country in the period 1930-38. The third place is taken by Poland with 7.9 per cent., the highest proportion since 1933. Ireland is responsible for 5.6 per cent., China for 4.2 per cent. and Bulgaria for 4.1 per cent. of the 1938 total.

*Distribution of Exports of Denmark, Netherlands and Poland
according to countries of destination.*

The exports of the three major exporters, Denmark, the Netherlands and Poland may now be examined.

While until 1932 the exports of Denmark were practically limited to supplying the United Kingdom and Germany, with the accentuation of the economic crisis Denmark was forced to enlarge the range of its exports; already in 1933 it shipped a large quantity to Switzerland and Spain, where previously it had no market. Thanks to the excellent quality of the Danish product, it was able to keep both the Swiss and Spanish markets, the first until 1938 inclusive and the second until 1937.

The principal customer of Denmark remains the United Kingdom, to which, however, in 1938 it no longer exported 85.2 per cent. of its total exports as in 1930 but only 73.3 per cent. The second customer is Germany, where it was able in 1938 to market 24.7 per cent. of its exports, a percentage exceeded only in 1932 (30.3 per cent.). In 1938 the United Kingdom and Germany together absorbed 98 per cent. of the total Danish exports. In 1938 Danish exports to the former country decreased by 9,116 thousand lb. with respect to 1937 while those to the latter increased by 4,233 thousand lb. As the exports to other countries also decreased by 2,677 thousand lb. total exports were 7,556 thousand lb. or 3.4 per cent. below those of 1937. As regards the relatively small quantity exported to "other countries" it may be assumed that the exports to Switzerland and Sweden also diminished notably in 1938 and that the exports to Spain had not yet commenced. However, given the higher price of eggs in 1938 as compared with 1937, Denmark was able to obtain in 1938, despite the decrease in the quantity exported, an export value higher than that of 1937, namely, 139.1 million kronor against 129.3 million in 1937.

The favourable development of Danish exports owes much to the location of the country, in the immediate vicinity of the two greatest importers in the world, the United Kingdom and Germany. However, the exceptional commercial organization and the high quality of the goods must also be taken into account. Although it might seem unlikely, the question of improving the quality of Danish eggs was in 1938 under discussion, with the object of bringing about still further improvements and greater standardization in order to obtain better prices.

The second exporter is the Netherlands, which in 1938 exported 194,642 thousand lb., a quantity 26,740 thousand lb. larger than in 1937. The difference between Danish and Dutch exports was in 1938 only 20,043 thousand lb.

II. — Exports of Eggs in the

(thousand)

DESTINATION	1938		1937		1936		1935	
	Absolute data	%	Absolute data	%	Absolute data	%	Absolute data	%
United Kingdom	157,404	73.3	166,520	74.9	132,785	68.7	106,656	66.0
Germany	53,031	24.7	48,794	22.0	46,338	24.0	35,754	22.0
Sweden			1,596	0.7	1,492	0.8	0	0.0
Switzerland			4,701	2.1	10,162	5.3	12,951	8.0
Spain			20	0.0	1,476	0.8	4,609	2.9
Belgo-Luxemburg Economic Union			—	—	79	0.0	225	0.1
Former Czechoslovakia	4,250	2.0			664	0.3	1,159	0.7
France					90	0.1	80	0.1
The Faeroes			610	0.3	31	0.0	42	0.0
Greenland					10	0.0	10	0.0
Other countries					19	0.0	38	0.0
Total	214,685	100.0	222,241	100.0	193,146	100.0	161,524	100.0

¹⁾ Average 1931-1934. — ²⁾ Average 1933 and 1934. — ³⁾ Average of the totals.

Thus these two countries compete for the first place. The Netherlands find their principal market in Germany and that next in importance in the United Kingdom. From 1936 inclusive the shipments to the latter exceeded those to the former and in 1938 represented 59.6 per cent. of the total export while those to Germany were only 37.6 per cent. These two countries in 1938 together absorbed 97.2 per cent. of the exports from the Netherlands. The fact that Denmark was also able to market in the United Kingdom and Germany 98 per cent. of its exports is an indication of the large absorptive capacity of these

III. — Exports of Eggs in the Shell

(thousand)

DESTINATION	1938		1937		1936		1935	
	Absolute data	%	Absolute data	%	Absolute data	%	Absolute data	%
Germany	73,095	37.6	70,029	41.7	51,433	36.0	70,923	52.0
United Kingdom	116,108	59.6	88,164	52.5	69,649	48.8	48,608	35.2
Belgo-Luxemburg Economic Union	983	0.5	1,500	0.9	11,679	8.2	5,185	3.8
Spain	1,592	0.8	3,815	2.3	5,046	3.5	7,846	5.8
Switzerland	1,785	0.9	3,057	1.8	1,847	1.3	1,254	0.9
France	370	0.2	547	0.3	527	0.4	397	0.3
Former Czechoslovakia	—	—	—	—	76	0.1	137	0.1
Other countries	709	0.4	790	0.5	2,463	1.7	1,901	1.4
Total	194,642	100.0	167,902	100.0	142,720	100.0	136,251	100.0

¹⁾ Average of 4 years. — ²⁾ Average of the totals.

Shell from Denmark, by destination

1b)

Average 1930-1934		1934		1933		1932		1931		1930	
Absolute data	%	Absolute data	%	Absolute data	%	Absolute data	%	Absolute data	%	Absolute data	%
105,401	72.5	103,645	66.8	103,295	70.0	104,548	68.7	114,231	85.1	101,288	85.2
29,951	20.6	34,728	22.4	33,877	23.0	46,109	30.3	17,975	13.4	17,065	14.4
476	0.3	9	0.0	94	0.1	260	0.2	1,776	1.3	241	0.2
4,081	2.8	10,108	6.5	5,423	3.7	782	0.5	10	0.0	—	—
4,213	3.0	5,305	3.4	3,122	2.1	—	—	—	—	—	—
718	0.5	679	0.4	758	0.5	—	—	—	—	—	—
299	0.2	311	0.2	555	0.4	329	0.2	1	0.0	—	—
42	0.0	75	0.1	80	0.0	12	0.0	2	0.0	—	—
20	0.0	3	0.0	26	0.0	26	0.0	27	0.0	20	0.0
5	0.0	8	0.0	6	0.0	4	0.0	4	0.0	3	0.0
205	0.1	220	0.2	244	0.2	148	0.1	225	0.2	189	0.2
145,411	100.0	155,091	100.0	147,480	100.0	152,218	100.0	134,251	100.0	118,806	100.0

two great importers for the better qualities (like those of Denmark and the Netherlands).

Denmark and the Netherlands find it easiest to export to these two neighbouring countries, leaving the other markets to other exporters. In any case the distribution of Netherlands exports amongst the minor importing countries is such that none of these absorbs even 1.0 per cent. of the total; Switzerland takes only 0.9 per cent. and Spain 0.8 per cent. of Netherlands exports.

from the Netherlands, by destination.

1b)

Average 1930-1934		1934		1933		1932		1931		1930	
Absolute data	%	Absolute data	%	Absolute data	%	Absolute data	%	Absolute data	%	Absolute data	%
119,789	72.9	108,676	76.7	96,445	76.8	146,619	83.1	125,446	66.0	121,759	65.0
35,200	21.4	18,177	12.8	19,243	15.3	24,932	14.1	56,999	30.0	56,649	30.3
2,222	1.4	2,349	1.7	4,214	3.4	1,385	0.8	1,379	0.7	1,781	1.0
3,022	1.8	10,831	7.6	3,799	3.0	339	0.2	88	0.1	54	0.0
894	0.6	606	0.4	1,067	0.8	1,408	0.8	1,176	0.6	214	0.1
444	0.3	336	0.2	324	0.3	240	0.1	1,288	0.7	32	0.0
186	0.1	88	0.1	109	0.1	535	0.3	13	0.0	—	—
2,521	1.5	700	0.5	410	0.3	1,045	0.6	3,648	1.9	6,802	3.6
164,241	100.0	141,763	100.0	125,611	100.0	176,503	100.0	190,037	100.0	187,291	100.0

The exports of the Netherlands in 1938 were carried out with the assistance of an export premium constituted from the yields of the customs duties on imported cereals. From the economic point of view 1938 must be regarded as a good year for Dutch poultry farming since the prices of poultry feed were rather lower than in 1937 and the average cost of production of eggs was also lower than in that year.

Responsible circles in the poultry industry regard a further improvement as possible by means of eliminating the competition between various exporting firms and establishing a central body to resolve all the problems that arise, in agreement with the Government authorities.

In Poland, the third exporter, exports in 1938 were also very high (61,137 thousand lb.), constituting a record for the period 1933-38. Exports in 1938, however, were much lower than those in 1930, which amounted to 121,500 thousand lb., which means that the production of eggs in Poland might permit a further increase in exports in future years. Poland naturally also directs its exports chiefly to the United Kingdom and Germany. It also exports large quantities, however, to other countries. It is in fact, characteristic of Polish exports to have large numbers of customers of medium importance. Exports of Polish eggs to the United Kingdom remains fairly uniform from one year to another, but show a tendency to increase. The quantity of eggs exported in 1938 to that country (36,580 thousand lb.) was the highest that Poland had ever made and represented 57 per cent. of the total export. The second place amongst purchasers of Polish eggs was occupied in 1938 by Germany and Austria, which took 15 per cent. Italy follows, taking 11.6 per cent. of the total export.

The good results obtained in 1938 were certainly not accidental; rather were they due to improvements in the methods of export and in quality. Eggs of better quality are shipped by preference to Germany and Switzerland.

IV. — Exports of Eggs in the Shell

(thousand)

DESTINATION	1938		1937		1936		1935	
	Absolute data	%	Absolute data	%	Absolute data	%	Absolute data	%
United Kingdom	36,580	57.0	31,397	54.0	34,690	65.2	27,432	54.2
Germany	9,602	15.0	5,210	9.0	3,504	6.6	—	—
Austria			2,165	3.7	2,473	4.7	2,557	5.1
Former Czechoslovakia	4,039	6.3	3,402	5.8	4,260	8.0	3,820	7.5
Italy	7,452	11.6	9,037	15.5	1,002	1.9	720	1.4
Switzerland	5,625	8.8	4,626	8.0	2,074	3.9	2,109	4.2
Spain	182	0.3	1,908	3.3	3,877	7.3	12,623	24.9
France	—	—	341	0.6	754	1.4	900	1.8
Other countries	657	1.0	71	0.1	535	1.0	440	0.9
Total	64,137	100.0	58,157	100.0	53,169	100.0	50,601	100.0
Argentina	(631)	(1.0)	—	—	—	—	—	—

¹⁾ Average of 4 years. — ²⁾ Average of 3 years. — ³⁾ Average of the totals. ⁴⁾ Average of 2 years.

Italy and France were heavy exporters in the period 1925-30 but subsequently reduced their exports from year to year and increased their imports. In 1938, after about six years of this tendency, these two countries diminished their imports and increased their exports more appreciably. The exports of Italy in 1938 rose to 2,094 thousand lb. against 523 thousand lb. in 1937. Notwithstanding the relative smallness of this quantity the revival of exports is in itself significant. Of the total exports 1,080 thousand lb. were shipped to Germany. As regards the imports of eggs into Italy in 1938, Poland was the largest supplier, as in 1937. Next in order as suppliers of eggs to Italy were Yugoslavia and Turkey. As regards France the 1938 export of 5,091 thousand lb. quintals was the largest since 1932. This figure has in itself some significance as regards future development. The largest quantity was sent in 1938 to Switzerland (2,183 thousand lb.). French imports in 1938 were reduced to 24,841 thousand lb. from 34,811 in 1937, the greater part coming from the French Colonies and Possessions and only 750 thousand lb. from foreign countries.

2. — COUNTRIES IMPORTING EGGS IN THE SHELL.

The number of importers is much smaller than that of exporters so it is much easier to obtain a clear view of the predominant tendencies. Amongst the few importers the United Kingdom and Germany occupy a position of exceptional importance so that the analysis of their import figures and of the changes in the relative position of the supplying countries from one year to another give a good idea of the world trade in eggs. A characteristic of 1938 was the considerable increase in world trade due to the great increases in the United Kingdom and Germany. The total imports of the eight countries considered rose to 753,483

from Poland, by destination.

(lb.)

Average 1930-1934		1934		1933		1932		1931		1930	
Absolute data	%	Absolute data	%	Absolute data	%	Absolute data	%	Absolute data	%	Absolute data	%
25,000	29.1	23,114	49.4	22,094	42.7	23,332	28.3	29,228	27.6	27,233	22.4
18,937	22.1	282	0.6	9,077	17.5	9,843	11.9	25,006	23.6	50,479	41.5
9,782	11.4	2,472	5.3	2,056	4.0	8,735	10.6	17,138	16.2	18,509	15.3
11,059	12.9	4,693	10.0	2,390	4.6	19,093	23.2	17,208	16.2	11,912	9.8
7,078	8.3	6,173	13.2	5,624	10.9	11,641	14.1	—	—	4,874	4.0
3,037	3.5	2,012	4.3	1,665	3.2	5,055	6.1	—	—	3,417	2.8
5,041	5.9	6,047	12.9	7,068	13.6	2,007	2.5	—	—	—	—
3,236	3.8	1,105	2.4	1,356	2.6	2,150	2.6	7,968	7.5	3,602	3.0
2,591	3.0	904	1.9	491	0.9	602	0.7	9,485	8.9	1,474	1.2
81,623	100.0	46,802	100.0	51,821	100.0	82,458	100.0	106,033	100.0	121,500	100.0
(145)	(0.2)	(177)	(0.4)	—	—	(113)	(0.1)	—	—	—	—

V. — *Trade of Italy and France in Eggs in the Shell during the last fourteen years.*

(thousand lb.)

YEARS	Italy			France		
	Imports	Exports	Surplus of imports (+) or of exports (—)	Imports	Exports	Surplus of imports (+) or of exports (—)
1938	15,412	2,094	+ 13,318	24,841	5,091	+ 19,750
1937	18,544	523	+ 18,021	34,811	851	+ 33,960
1936	4,932	87	+ 4,845	32,543	2,443	+ 30,100
1935	11,124	570	+ 10,554	23,609	2,760	+ 20,849
Average 1930-34 . . .	43,864	10,533	+ 33,331	37,754	13,189	+ 24,565
1934	18,184	1,572	+ 16,612	26,469	2,499	+ 23,970
1933	19,363	2,197	+ 17,166	34,694	821	+ 33,873
1932	77,138	8,539	+ 68,599	28,384	2,306	+ 26,078
1931	54,320	19,807	+ 34,513	67,643	15,104	+ 52,539
1930	50,315	20,551	+ 29,764	31,582	45,217	— 13,635
Average 1925-29 . . .	26,954	38,913	— 11,959	20,285	43,964	— 23,679
1929	36,106	22,782	+ 13,324	32,428	57,098	— 24,670
1928	39,450	26,513	+ 12,937	22,545	89,547	— 67,002
1927	33,569	31,050	+ 2,519	18,144	30,507	— 12,363
1926	15,338	47,303	— 31,965	14,109	32,731	— 18,622
1925	10,309	66,919	— 56,610	14,197	9,938	+ 4,259

thousand lb. against 720,928 thousand lb. in 1937 and 790,209 on the average of 1930-34; the percentages are 104.5 and 95.4 respectively. This phenomenon

VI A). — *World Trade in Eggs*

(thousand

COUNTRIES	1938	1937	1936	1935	Average 1930-1934
United Kingdom	457,969	409,155	406,903	326,873	362,339
Germany	201,831	198,797	155,814	142,527	267,426
Austria	12,382	11,266	8,195	10,064	27,385
Switzerland	31,157	31,074	30,054	30,837	33,588
Former Czechoslovakia	6,977	14,781	14,713	13,311	14,190
France	24,841	34,811	32,543	23,609	37,754
Italy	15,412	18,544	4,932	11,124	43,864
Greece	2,914	2,500	1,463	3,450	3,663
TOTAL	753,483	720,928	654,518	561,795	790,209
Spain . . . . .	...	...	...	73,694	63,963
GENERAL TOTAL . . . . .	...	...	...	635,489	854,172

may be related to the increase in industrial activity, the increase in population and the slower development of poultry culture in the importing countries. In addition account must be taken of the steadily growing knowledge amongst the

masses, of the food value of eggs and of the ease and relative economy of preparing food in which eggs play an essential part. A check on still larger imports is constituted by the necessity of defending the national poultry culture of the respective importing countries and by financial reasons.

As regards individual importing countries, the imports of the United Kingdom, which is the larger importer in the world, amounted in 1938 to 457,969 thousand lb. against 409,155 in 1937 and 362,339 on the average of 1930-34, increases respectively of 11.9 per cent. with respect to 1937 and 26.4 per cent. with respect to the average of 1930-34. The imports of the United Kingdom in 1938 constituted a record for the nine years under consideration.

The imports of Germany ⁽¹⁾ in 1938, though not strictly comparable with those of the preceding year, show a slight increase with respect to 1937 and a considerable increase with respect to the years 1933-36. The imports of 1938 remain, however, much below those of the period 1930-32, when the German Government had not yet initiated its policy of severely restricting the import of eggs from foreign countries and of intensifying national poultry culture.

Of the other importing countries, Austria ⁽¹⁾, Switzerland and Greece increased their imports slightly in 1938, while Italy, France and Czechoslovakia showed heavy reductions. These six minor importers in 1938 imported 19,293 thousand lb. less than in 1937, but the United Kingdom and Germany imported 51,848 thousand lb. more, so that on the whole there was a considerable increase as already emphasized. No official data have so far been published in Spain regarding the trade in eggs.

The relative importance of each of the importing countries in the nine-year period considered is seen in the following table. That of the United Kingdom

in the Shell. — Imports.

lb.).

1934	1933	1932	1931	1930	% 1938			
					1937 = 100	1936 = 100	1935 = 100	Average = 100
309,785	303,786	330,606	428,666	438,853	111.9	112.5	140.1	126.4
167,480	184,933	315,937	315,554	353,221	101.5	129.5	141.6	75.5
14,725	19,772	25,196	38,426	38,804	109.9	151.1	123.0	45.2
32,952	33,024	37,128	34,506	30,332	100.3	103.7	101.0	92.8
9,712	11,462	19,667	18,204	11,904	47.2	47.4	52.4	49.2
26,469	34,694	28,384	67,643	31,582	71.4	76.3	105.2	65.8
18,464	19,363	77,138	54,320	50,315	83.1	312.5	138.5	35.1
2,035	945	2,516	6,549	6,274	116.5	199.2	84.5	79.6
581,340	607,979	836,572	963,868	961,285	104.5	115.1	134.1	95.4
76,138	83,561	51,328	50,056	58,731	...	...	...	...
657,478	691,540	887,900	1,013,924	1,020,016	...	...	...	...

⁽¹⁾ From October 1938 including the greater part of the Sudeten German area. From April 1938 Austria was no longer considered as a foreign country in German trade statistics.

rose in 1938 to 60.8 per cent. of the total imports under consideration. This is the highest share recorded in the period in question. The total that serves as basis for the calculation does not include Spain, which up to 1935 took the

VI B). — *World Trade in Eggs in the Shell. — Imports.*

Relative importance of the principal egg-importing countries.

(Percentages)

COUNTRIES	1938	1937	1936	1935	Average 1930-34	1934	1933	1932	1931	1930
	%	%	%	%	%	%	%	%	%	%
United Kingdom . . .	60.8	56.7	62.1	58.2	45.8	53.3	49.9	39.5	44.5	45.7
Germany	26.8	27.6	23.8	25.3	33.8	28.8	30.4	37.8	32.7	36.7
Austria	1.7	1.6	1.3	1.8	3.5	2.5	3.3	3.0	4.0	4.0
Switzerland	4.1	4.3	4.6	5.5	4.3	5.7	5.4	4.4	3.6	3.2
Former Czechoslovakia .	0.9	2.1	2.2	2.4	1.8	1.7	1.9	2.4	1.9	1.2
France	3.3	4.8	5.0	4.2	4.8	4.6	5.7	3.4	7.0	3.3
Italy	2.0	2.6	0.8	2.0	5.5	3.1	3.2	9.2	5.6	5.2
Greece	0.4	0.3	0.2	0.6	0.5	0.3	0.2	0.3	0.7	0.7
Total . . .	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

third rank as an importer. The share of Germany ⁽¹⁾ was 26.8 per cent. in 1938 against 27.6 per cent. in 1937. The relative importance of the United Kingdom and Germany ⁽¹⁾ together amounted in 1938 to 87.6 per cent. against 84.3 per cent. in 1937 and 82.4 per cent. in 1930, the year of highest imports in the period under consideration.

*Distribution of Imports of the United Kingdom, Germany and Spain
according to countries of origin.*

Given the predominance of the imports into the United Kingdom and Germany and the fact that up to 1935 Spain was the third largest importer, the statistics of the imports of these countries are brought together in the following three tables according to countries of origin. From a comparison of the contributions of the various countries to the principal markets, may be seen the potential production and competitive capacity of the individual countries and the tendencies of commercial policy in the importing countries.

In this respect the distribution of the imports into the United Kingdom especially may be considered as characteristic of the entire world trade, since there are no important exporting countries for eggs that do not endeavour to export to the United Kingdom.

The countries of origin with regard to the United Kingdom may be divided into two categories: 1) British countries and 2) foreign countries.

⁽¹⁾ See note on the preceding page.

The share of British countries increased from 1930, when it represented 22 per cent., to 1933 (32.7 per cent.) and then fell until 1937, when it was only 14.6 per cent.; in 1938 there was a further slight fall, despite an increase in imports from Ireland, and the British share amounted to 13.3 per cent. of the total. Amongst the British countries in 1938 Ireland increased by about 4,400 thousand lb. with respect to 1937 its shipments to the United Kingdom, but they remained much below the maximum of 1930.

The share of foreign countries on the average of 1930-34 was 72.8 per cent. The maximum was reached in 1938 with 86.8 per cent. of the total.

The principal supplier of the United Kingdom is Denmark, of which the relative importance increased steadily from 1930 to 1934, diminished slightly under the influence of Dutch competition in 1935 and 1936 and reached its maximum of 40.4 per cent. in 1937. In 1938 the importance of Danish supplies fell to 34.3 per cent. owing to the heavy participation of the Netherlands in the imports into the United Kingdom. The second supplier of the United Kingdom from 1930 to 1934 was Ireland but from 1935 that country gave way to the Netherlands, which maintained their position until 1938.

In 1938 Denmark and the Netherlands took a very large share in the imports of the United Kingdom, with about 255,400 thousand lb. of eggs, equal to 55.7 per cent. of the total import. As has already been mentioned, these two countries are seeking to bring the quality of their product and their commercial organization to the highest possible levels in order to maintain their respective positions in the United Kingdom and German markets.

From 1936 the third place in United Kingdom exports has been taken by Poland-Danzig. The fourth place, which in 1937 was occupied by China, passed in 1938 to Ireland. The results of the hostilities in the former country have been felt with increasing force, particularly in the trade in egg products. The imports of the United Kingdom from China were also exceeded in 1938 by those from Finland and from Sweden. Summarizing, in 1938 the principal suppliers of the United Kingdom were Denmark, with 34.3 per cent. of the total, the Netherlands, with 21.4 per cent., Poland-Danzig, with 9.5 per cent. and Ireland, with 8.0 per cent.; these four sources were thus together responsible for 73.2 per cent. of the total imports.

The remaining 26.8 per cent. was supplied by a very large number of countries, in all the continents. As regards the countries for which data are available for 1938 it is worthy of note that Finland has become a steady supplier of good quality eggs to the United Kingdom market. The same may be said of Sweden. Both these countries were able to improve their position in 1938 with respect to 1937 and their combined share of the market rose from 3.4 per cent. in 1937 to 3.6 per cent. in 1938. The relative importance of China fell in 1938 to only 1.1 per cent. against 4.4 per cent. in the preceding year, while that of the Belgo-Luxemburg Union fell from 1.8 per cent. to 0.4 per cent. From the 1937 statistics, which give the most recent complete list of suppliers, it is also seen that Romania was in that year unable to retain the considerable position attained in 1936, its share having fallen from 4.7 per cent. in 1936 to only 2.5 per cent. in 1937. Argentina and Uruguay, which

VII. — Imports of Eggs in the Shell into
(thousand)

COUNTRIES OF ORIGIN	1938		1937		1936		1935	
	Absolute data	%	Absolute data	%	Absolute data	%	Absolute data	%
<i>I. - British Countries.</i>								
Ireland	36,674	8.0	32,230	7.9	42,382	10.4	39,600	12.1
Union of South Africa and South West Africa	4,479	1.0	4,245	1.0 ⁽¹⁾	6,147	1.5 ⁽¹⁾	5,967	1.9
Australia	16,698	3.7	20,881	5.1	27,032	6.6	31,765	9.7
Canada	2,900	0.6	2,326	0.6	1,642	0.4	1,627	0.5
Other British Countries			192	0.05	643	0.2	677	0.2
<i>Total from British Countries . . .</i>	<i>60,751</i>	<i>13.3</i>	<i>59,874</i>	<i>14.6</i>	<i>77,846</i>	<i>19.1</i>	<i>79,636</i>	<i>24.4</i>
including:								
New Zealand . . . . .	...	...	(116)	(0.03)	(567)	(0.1)	(619)	(0.2)
<i>II. - Foreign Countries.</i>								
Denmark	157,262	34.3	165,350	40.4	132,093	32.5	108,546	33.1
Netherlands	98,099	21.4	71,271	17.4	62,827	15.4	44,297	13.6
Belgo-Luxemburg Economic Union . . .	1,776	0.4	7,214	1.8	8,928	2.2	4,235	1.3
Germany . . . . .	...	...	948	0.2	656	0.2	709	0.2
Finland	8,557	1.9	8,298	2.0	6,143	1.5	10,607	3.2
Sweden	8,014	1.7	5,503	1.4	3,082	0.8	4,507	1.4
Norway . . . . .	...	...	1,963	0.5	2,500	0.6	1,333	0.4
Lithuania . . . . .	...	...	7,342	1.8	7,392	1.8	2,425	7.0
Estonia . . . . .	...	...	793	0.2	2,286	0.6	2,882	0.9
Latvia . . . . .	...	...	1,467	0.4	1,097	0.3	263	0.1
Poland (and Danzig)	43,339	9.5	37,315	9.1	42,391	10.4	33,316	10.2
Romania . . . . .	...	...	10,172	2.5	19,323	4.7	7,298	2.2
U. S. S. R. . . . .	...	...	—	—	0	0.0	257	0.1
China	4,931	1.1	18,032	4.4	21,978	5.4	20,171	6.2
Egypt . . . . .	...	...	834	0.2	4,247	1.0	969	0.3
Argentina . . . . .	...	...	4,902	1.2	6,310	1.6	1,838	0.6
Uruguay . . . . .	...	...	2,234	0.5	3,923	1.0	2,725	0.8
Other foreign countries	75,241	16.4	5,643	1.4	3,881	0.9	859	0.3
<i>Total from foreign countries . . .</i>	<i>397,218</i>	<i>86.7</i>	<i>349,281</i>	<i>85.4</i>	<i>329,057</i>	<i>80.9</i>	<i>247,237</i>	<i>75.6</i>
including:								
France . . . . .	...	...	...	...	(15)	(0.0)	(0)	(0.0)
Italy . . . . .	...	...	...	...	...	...	...	...
United States . . . . .	...	...	...	...	...	...	...	...
Hungary . . . . .	...	...	(647)	(0.2)	—	—	(196)	(0.1)
Yugoslavia . . . . .	...	...	(3,157)	(0.8)	(2,107)	(0.5)	(80)	(0.0)
GENERAL TOTAL . . .	457,969	100.0	409,155	100.0	406,903	100.0	326,873	100.0

¹⁾ Union of South Africa only. — ²⁾ Average 1932-1934. — ³⁾ Average 1930-1933. — ⁴⁾ Average 1932-1934. — ⁵⁾ Average

the United Kingdom, by countries of origin.

ib.).

Average 1930-1934		1934		1933		1932		1931		1930	
Absolute data	%	Absolute data	%	Absolute data	%	Absolute data	%	Absolute data	%	Absolute data	%
65,927	18.2	52,819	17.1	56,830	18.7	65,285	19.8	75,648	17.7	79,054	18.0
7,730	2.1	4,965	1.6	7,520	2.5	8,698	2.6	9,737	2.3	7,729	1.7
23,105	6.4	34,706	11.2	31,406	10.3	25,059	7.6	15,182	3.5	9,171	2.1
1,412	0.4	2,927	0.9	3,024	1.0	90	0.0	769	0.2	248	0.1
400	0.1	541	0.2	628	0.2	328	0.1	206	0.0	302	0.1
98,574	27.2	95,958	31.0	99,408	32.7	99,460	30.1	101,542	23.7	96,504	22.0
^{a)} (472)	(0.1)	(536)	(0.2)	(618)	(0.2)	(261)	(0.1)	..	...	...	...
110,077	30.3	105,553	34.0	103,072	33.9	105,695	32.0	124,815	29.1	111,252	25.3
35,948	9.9	15,622	5.0	16,582	5.5	23,198	7.0	63,481	14.8	60,859	13.8
21,458	5.9	811	0.3	7,432	2.5	26,187	7.9	34,275	8.0	38,586	8.8
4,259	1.2	1,191	0.4	1,455	0.5	3,783	1.1	8,400	2.0	6,467	1.5
5,801	1.6	14,707	4.7	7,907	2.6	5,208	1.6	986	0.2	195	0.0
5,464	1.5	4,263	1.4	3,340	1.1	5,989	1.8	5,605	1.3	8,121	1.9
2,442	0.7	2,295	0.7	3,241	1.1	3,106	0.9	1,823	0.4	1,744	0.4
933	0.3	1,439	0.5	319	0.1	1,128	0.3	1,241	0.3	538	0.1
683	0.2	2,135	0.7	843	0.3	193	0.1	199	0.0	47	0.0
326	0.1	19	0.0	112	0.0	170	0.1	641	0.1	689	0.2
39,011	10.7	32,108	10.4	27,793	9.1	30,991	9.4	44,430	10.4	59,733	13.6
613	0.2	2,490	0.8	550	0.2	4	0.0	0	0.0	20	0.0
1,970	0.5	1,751	0.6	915	0.3	1,441	0.4	4,339	1.0	1,403	0.3
22,724	6.3	23,397	7.6	23,093	7.6	14,055	4.3	24,756	5.8	28,317	6.5
3,399	0.9	146	0.0	1,665	0.5	4,068	1.2	3,653	0.9	7,465	1.7
1,726	0.5	683	0.2	1,593	0.5	1,678	0.5	3,396	0.8	1,278	0.3
2,025	0.6	2,661	0.9	2,636	0.9	3,378	1.0	1,204	0.3	245	0.1
4,906	1.4	2,556	0.8	1,830	0.6	874	0.3	3,880	0.9	15,390	3.5
263,765	72.8	213,827	69.0	204,378	67.3	231,146	69.9	327,124	76.3	342,349	78.0
(2,561)	(0.7)	(1)	(0.0)	(4)	(0.0)	(308)	(0.1)	(1,599)	(0.4)	(10,892)	(2.5)
^{a)} (382)	(0.1)	...	...	(16)	(0.0)	(12)	(0.0)	(427)	(0.1)	(1,073)	(0.2)
^{a)} (1,252)	(0.3)	...	...	(237)	(0.1)	(6)	(0.0)	(1,588)	(0.4)	(3,177)	(0.7)
^{a)} (257)	(0.1)	(571)	(0.2)	(149)	(0.0)	(50)	(0.0)	...	...	...	...
^{a)} (376)	(0.1)	(241)	(0.1)	(512)	(0.2)	—	—	...	...	...	...
362,339	100.0	309,785	100.0	303,786	100.0	330,606	100.0	428,666	100.0	438,853	100.0

1933 and 1934.

are suppliers of relatively recent date to the United Kingdom, also showed a decline with respect to 1936 but succeeded in maintaining a fairly good position, with 1.2 per cent. and 0.5 per cent. respectively.

Amongst the new sources of United Kingdom supplies in 1937 may be mentioned Yugoslavia and Hungary, with a joint share of 1.0 per cent. These two countries will probably figure also in the 1938 list, given the fact that the United Kingdom shows increasing interest in the egg production of the whole Danube area (Romania, Hungary, Bulgaria and Yugoslavia) with a view to filling the gap left by the falling off in supplies from China. In this connection the Hungarian statistics for 1938 give the United Kingdom as the principal customer; with 13,313 thousand lb. of eggs in the shell and egg products, while Germany figures with 8,937 thousand lb., Austria with 6,651 and Italy with 1,176 thousand lb. The Romanian statistics for 1938 also record for the first time a considerable export of egg products (3,321 thousand lb., not including eggs in the shell) shipped for the greater part to the United Kingdom.

Germany, which takes the second place in world imports, also possesses a long list of suppliers, of which three are particularly important: the Nether-

VIII. — Imports of Eggs in the Shell

(thousand)

COUNTRIES OF ORIGIN	1938		1937		1936		1935	
	Absolute data	%	Absolute data	%	Absolute data	%	Absolute data	%
Netherlands	48,133	23.9	46,052	23.2	34,621	22.2	46,927	32.9
Denmark	48,578	24.1	43,360	21.8	40,648	26.1	32,529	22.8
Belgo-Luxemburg Economic Union . . .	14,022	7.0	11,995	6.0	12,052	7.7	6,183	4.3
Bulgaria	23,108	11.5	28,367	14.3	27,594	17.7	19,844	13.9
Yugoslavia	10,354	5.1	8,917	4.5	6,036	3.9	6,998	4.9
Hungary	7,627	3.8	7,831	4.0	4,768	3.1	4,635	3.3
Romania	1,907	0.9	7,335	3.7	2,031	1.3	4,105	2.9
Poland and Danzig	8 283	4.1	4,773	2.4	3,683	2.4	120	0.1
U. S. S. R.	—	—	—	—	—	—	439	0.3
Finland	9,348	4.6	7,110	3.6	7,439	4.8	5,636	4.0
Sweden	4,300	2.1	4,053	2.0	2,686	1.7	2,619	1.8
Norway	1,081	0.5	1,065	0.5	577	0.4	310	0.2
Estonia	2,751	1.4	4,210	2.1	2,871	1.8	2,606	1.9
Lithuania	2,766	1.4	2,121	1.1	597	0.4	6	0.0
Latvia	449	0.2	1,462	0.7	220	0.1	1	0.0
China	9,252	4.6	13,108	6.6	3,169	2.0	—	—
Turkey	1,080	0.5	834	0.4	2,205	1.4	3,563	2.5
Egypt	—	—	—	—	—	—	—	—
Argentina	1,266	0.6	1,018	0.5	238	0.2	260	0.2
Other countries	7,526	3.7	5,186	2.6	4,379	2.8	5,746	4.0
Total . . .	201,831	100.0	198,697	100.0	155,814	100.0	142,727	100.0
including:								
Ireland	(6,252)	(3.1)	(4,662)	(2.3)	(4,220)	(2.7)	(4,997)	(3.5)
Italy	(584)	(0.3)	(6)	(0.0)	—	—	(659)	(0.5)
Chile	(650)	(0.3)	(463)	(0.2)	(19)	(0.0)	—	—

lands, Denmark and Bulgaria. From 1930 to 1935 the largest supplier was the Netherlands, in 1936 the first place passed to Denmark, in the following year it was regained by the Netherlands and in 1938 it was again taken by Denmark. The share of these two countries in the German market amounted in all to 48.0 per cent. in 1938, against 45.5 per cent. on the average of 1930-34 and only 33.4 per cent. in 1930, the year of Germany's largest imports in the period under consideration. Bulgaria, though it considerably reduced its shipments to Germany in 1938, still maintained the third place, with 11.5 per cent. of the total. The fourth place, which in 1937 belonged to China, passed to the Belgo-Luxemburg Union, which succeeded in increasing its share of the German market both absolutely and relatively. It is worthy of note that Ireland, a supplier of recent date in this market, further improved its position in 1938, taking 3.1 per cent. After two years of absence from the German market, Italy reappeared, with 584 thousand lb., in 1938.

It is generally agreed that the German market has a very great capacity but the Government is making strenuous and comprehensive efforts to increase national production and reduce or maintain within moderate bounds imports

into Germany, by countries of origin.

(lb.)

Average 1930-1934		1934		1933		1932		1931		1930	
Absolute data	%	Absolute data	%	Absolute data	%	Absolute data	%	Absolute data	%	Absolute data	%
93,016	34.8	74,134	44.3	68,721	37.2	119,611	37.8	101,473	32.1	101,142	28.6
28,606	10.7	32,696	19.5	30,946	16.7	43,648	13.8	18,932	6.0	16,806	4.8
18,677	7.0	8,071	4.8	9,067	4.9	34,734	11.0	15,158	4.8	26,353	7.5
27,097	10.1	16,436	9.8	12,007	6.5	25,354	8.0	42,145	13.3	39,543	11.2
11,668	4.4	4,952	2.9	9,495	5.2	6,878	2.2	15,627	5.0	21,390	6.1
8,125	3.0	4,675	2.8	5,385	2.9	2,733	0.9	12,260	3.9	15,570	4.4
24,759	9.2	10,008	6.0	13,620	7.4	33,538	10.6	29,060	9.2	37,568	10.6
9,572	3.6	865	0.5	8,216	4.5	5,312	1.7	8,477	2.7	24,990	7.5
13,823	5.2	118	0.1	2,491	1.3	12,410	3.9	30,568	9.6	23,526	6.7
5,322	2.0	6,391	3.8	10,852	5.9	7,819	2.5	1,480	0.5	69	0.0
3,305	1.2	2,443	1.5	4,036	2.2	4,353	1.4	2,377	0.8	3,314	0.9
534	0.2	502	0.3	1,112	0.6	938	0.3	81	0.0	38	0.0
2,328	0.9	1,400	0.8	1,528	0.8	2,508	0.8	2,831	0.9	3,374	1.0
3,651	1.4	211	0.1	2,127	1.1	4,881	1.5	5,475	1.7	5,563	1.6
36	0.0	—	—	37	0.0	40	0.0	—	—	103	0.0
4,676	1.7	116	0.1	2,066	1.1	3,342	1.1	8,057	2.6	9,797	2.8
1,486	0.6	2,486	1.5	482	0.2	1,504	0.5	1,594	0.6	1,363	0.4
376	0.1	60	0.0	1,060	0.6	74	0.0	179	0.1	509	0.1
295	0.1	411	0.3	334	0.2	526	0.2	146	0.0	58	0.0
10,074	3.8	1,505	0.9	1,351	0.7	5,734	1.8	19,634	6.2	22,145	6.2
267,426	100.0	167,480	100.0	184,933	100.0	315,937	100.0	315,554	100.0	353,221	100.0
...	...	(52)	(0.0)	—	—	—	—	—	—	—	—
(6,717)	(2.5)	(1,245)	(0.7)	(854)	(0.5)	(4,606)	(1.5)	(13,792)	(4.4)	(13,090)	(3.7)

IX. — Imports of Eggs in the Shell

(Thousand

COUNTRIES OF ORIGIN	1935		Average 1930-1934	
	Absolute data	%	Absolute data	%
Morocco, Spanish zone	1,256	1,7	2,063	3,2
Morocco, French zone	4,034	5,5	8,586	13,4
Morocco, International zone.	1,302	1,7	756	1,2
Algeria	—	—	417	0,7
Egypt	49	0,1	5,293	8,3
France	1,682	2,3	5,523	8,6
Portugal	891	1,2	2,473	3,9
Italy	14	0,0	128	0,2
Belgo-Luxemb. Ec. Union	15,566	21,1	9,203	14,4
Netherlands	2,977	4,0	1,281	2,0
Denmark	3,854	5,2 ¹⁾	3,875	6,1
Ireland	3,903	5,3 ¹⁾	1,292	2,0
Germany	136	0,2	613	1,0
United Kingdom	20	0,0	29	0,0
Finland	191	0,3 ¹⁾	1,185	1,9
Sweden	—	— ¹⁾	44	0,1
Poland	13,969	19,0	3,591	5,6
Bulgaria	4,429	6,0 ²⁾	5,328	8,3
Yugoslavia	142	0,2 ¹⁾	454	0,7
Romania	640	0,9 ¹⁾	187	0,3
Hungary	—	— ³⁾	69	0,1
Turkey	6,200	8,4	16,767	26,2
China	153	0,2 ³⁾	65	0,1
Argentina	7,578	10,3	631	1,0
Uruguay	4,042	5,5 ³⁾	670	1,0
Chile	598	0,8 ¹⁾	170	0,3
Other countries	68	0,1	100	0,2
TOTAL . . .	73,694	100,0 ⁴⁾	63,963	100,0

¹⁾ Average of two years. — ²⁾ Average of three years. — ³⁾ Year 1934. — ⁴⁾ Average of the totals.

into Spain , by countries of origin.

lb.)

1934		1933		1932		1931		1930	
Absolute data	%	Absolute data	%	Absolute data	%	Absolute data	%	Absolute data	%
979	1.3	547	0.7	1,617	3.2	3,272	6.5	3,900	6.6
5,372	7.1	1,217	1.5	5,786	11.3	13,812	27.6	16,745	28.5
1,344	1.8	524	0.6	824	1.6	532	1.1	558	0.9
14	0.0	0	—	54	0.1	258	0.5	1,759	3.0
6,102	8.0	7,488	9.0	6,753	13.2	3,856	7.7	2,264	3.9
2,404	3.2	94	0.1	796	1.6	5,518	11.0	18,805	32.0
848	1.1	2,764	3.3	4,764	9.3	2,450	4.9	1,540	2.6
0	—	0	—	110	0.2	163	0.3	368	0.6
18,899	24.8	19,848	23.7	7,145	13.9	45	0.1	80	0.1
4,365	5.7	1,715	2.1	218	0.4	62	0.1	46	0.1
4,955	6.5	2,795	3.3	—	—	—	—	—	—
2,457	3.2	126	0.2	—	—	—	—	—	—
46	0.1	110	0.1	837	1.6	973	2.0	1,101	1.9
29	0.0	13	0.0	6	0.0	2	0.0	93	0.2
1,614	2.1	756	0.9	—	—	—	—	—	—
56	0.1	33	0.0	—	—	—	—	—	—
4,905	6.4	8,092	9.7	3,807	7.4	1,028	2.1	121	0.2
6,287	8.3	9,637	11.5	59	0.1	—	—	—	—
752	1.0	157	0.2	—	—	—	—	—	—
326	0.4	48	0.1	—	—	—	—	—	—
69	0.1	—	—	—	—	—	—	—	—
10,522	13.8	25,700	30.8	18,220	35.5	18,068	36.1	11,323	19.3
65	0.1	—	—	—	—	—	—	—	—
1,767	2.3	1,173	1.4	204	0.4	9	0.0	0	—
1,258	1.7	682	0.8	69	0.1	—	—	—	—
339	0.4	1	0.0	—	—	—	—	—	—
364	0.5	40	0.0	59	0.1	8	0.0	28	0.1
76,138	100.0	83,561	100.0	51,328	100.0	50,056	100.0	58,731	100.0

from foreign countries. Increase in the numbers of poultry not appearing desirable, as involving larger imports of feed, the Government is aiding poultry-farmers to improve quality, by means of subsidies, technical advice, the distribution of one-day chicks and the exchange of cocks.

A table similar to those for the United Kingdom and Germany has also been prepared for Spain, which ranked as the third importer up to 1935. Owing to the war, Spanish statistics stop short with 1935 and the first quarter of 1936. In the years from 1936 to 1938 imports of eggs into Spain certainly did not cease though they were very greatly reduced. A reconstitution of Spanish import statistics by means of the statistics of the exporting countries can be accepted only with reserve, there being no certainty that the quantities registered as exported actually reached their destination.

In any case the above table demonstrates that Spain also possesses a very large number of suppliers, amongst whom, on the basis of the 1930-34 average, the first place was occupied by Turkey, with 26.2 per cent. of the total. On the same basis, the second place was taken by the Belgo-Luxemburg Union, with 14.4 per cent., followed by French Morocco with 13.4 per cent. It is noteworthy that in 1935 Poland, Argentina, Bulgaria and Uruguay succeeded in placing appreciable quantities on the Spanish market.

It is certain that it will not be possible in a short time to restore the trade on the large scale attained in 1935, especially since the Government will no doubt make the greatest efforts to increase the numbers of poultry within the country and restrict imports as far as possible. In fact poultry culture in Spain had begun to make good progress, assisted by both college and school instruction.

X. — Imports of Eggs in the Shell during

COUNTRIES	1939	1938	1937	1936	Average 1931-1935
United Kingdom	110,660	104,240	84,380	88,724	71,534
Germany	55,229	55,553	50,066	33,859	56,041
Austria ¹⁾	2,290	2,136	3,001	2,431	4,595
Switzerland	6,890	6,932	7,212	5,673	8,544
Former Czechoslovakia ²⁾	1,305	1,495	2,628	1,490	1,918
France	5,765	7,210	11,718	11,353	9,571
Italy	3,775	2,120	2,193	1,651	7,493
Greece ¹⁾	198	205	46	397	659
Total . . .	186,112	179,891	161,244	145,578	160,355
Spain . . . . .	...	...	...	13,630	12,548
General total . . .	...	...	...	159,208	172,903

¹⁾ January and February only. — ²⁾ January, February and the first half of March.

IV. — Forecast of the development of the Egg Trade in the current year and Egg Prices.

In order to have the necessary basic elements for any forecast there have been included in the following table the data of imports into the principal importing countries in the first three months of the current year. The most important fact brought out by this table is the further increase in the imports of the United Kingdom, which represent a record for the period under consideration. With respect to the first quarter of 1938 the imports in the first quarter of 1939 show an increase of 6.2 per cent. and with respect to the corresponding average for 1931-35 one of 54.7 per cent. The exceptionally large increase in Italian imports in this quarter is also noteworthy. Imports into Germany, Austria and Switzerland on the whole remain practically at the same level, those into France, on the other hand, show a decrease. In all, the eight countries under consideration register an increase of 3.5 per cent. in comparison with the first quarter of 1938.

To enable the relative importance of the trade in the first quarter to be evaluated there have been indicated in table XI the percentages of the imports in that quarter to the respective annual totals for the various countries on the average of 1931-35 and for the individual years from 1936 to 1938. On the average and for the single years the quantities imported in the first quarter are less than one-fourth of the annual totals, which is explained by the fact that in this period prices are generally higher than in the succeeding quarters. In 1938 the proportion occupied by the first quarter was 23.9 per cent. As regards the individual countries France regularly imports more than one-fourth of the

first quarter of the years 1931 to 1939.

1935	1934	1933	1932	1931	% of the first quarter 1939			
					first quarter 1938 = 100	first quarter 1937 = 100	first quarter 1936 = 100	average first quarter 1931-35 = 100
63,891	65,881	60,148	71,609	96,193	106.2	131.1	124.7	154.7
34,537	42,551	70,714	66,254	66,150	99.4	110.3	163.1	98.5
2,294	4,290	5,631	4,938	5,823	107.2	76.3	94.2	49.8
7,069	8,746	7,168	12,405	7,332	99.4	95.5	121.4	80.6
1,424	1,171	1,981	2,865	2,147	87.3	49.7	87.6	68.1
6,014	10,104	11,713	5,331	14,695	79.9	49.2	50.8	60.2
2,446	6,163	3,197	16,887	8,770	178.0	172.1	228.7	50.4
382	431	39	1,165	1,278	96.1	426.7	49.8	30.0
118,057	139,337	160,591	181,454	202,338	103.5	115.4	127.8	116.1
14,680	21,499	7,293	9,239	10,027	...	...	...	...
132,737	160,836	167,884	190,693	212,365	...	...	...	...

XI. — *Relative importance of Imports of Eggs in Shell during the first quarter (January-March)*

with respect to annual imports into the principal importing countries.

COUNTRIES	1939	1938		1937		1936		Aver. 1931-1935	
	imports during the quarter Jan.-March	imports during the quarter Jan.-March		imports during the quarter Jan.-March		imports during the quarter Jan.-March		imports during the quarter January-March	
	absolute data	absolute data	1) %	absolute data	1) %	absolute data	1) %	absolute data	1) %
United Kingdom	110,660	104,240	22.8	84,380	20.6	88,724	21.8	71,534	21.0
Germany	55,229	55,553	27.5	50,066	25.2	33,859	21.7	56,041	24.9
Austria ^{a)}	2,290	2,136	17.3	3,001	26.6	2,431	29.7	4,595	21.2
Switzerland	6,890	6,932	22.2	7,212	13.0	5,673	18.9	8,544	25.4
Czechoslovakia ^{a)}	1,305	1,495	21.4	2,628	17.8	1,490	10.1	1,918	13.3
France	5,765	7,210	29.0	11,718	33.7	11,353	34.9	9,571	26.5
Italy	3,775	2,120	13.8	2,193	11.8	1,651	33.5	7,493	20.8
Greece ^{a)}	198	205	7.1	46	1.9	397	27.1	659	21.3
Total	186,112	179,891	23.9	161,244	22.4	145,578	22.2	160,355	22.6
Spain . . . . .	...	...	...	...	...	13,630	...	12,548	18.7
General total . . . . .	...	...	...	...	...	159,208	...	172,903	22.0

¹⁾ Annual imports = 100. — ²⁾ January and February only. — ³⁾ January, February and the first half of March.

year's imports in the first quarter since it takes its supplies for the greater part from the colonies, of which the produce arrives on the market particularly in the winter months and makes up for the smaller home supply. In the first quarter of 1938 Germany also imported more than one-fourth of its year's takings, probably for incidental reasons.

On the basis of these statistics for recent years it seems permissible, even taking into account the international tension, to suppose that for 1939 there will be a further slight increase on the 1938 figures in the volume of trade in eggs in the shell. Such an increase would probably, however, not be very great since imports of egg products from China must in large part gradually be replaced by imports from other countries and this will diminish the available export surplus of eggs in the shell, as in the typical case of Romania.

In order to give a comprehensive idea of the movement in prices for a series of years the average value in gold francs per 1,000 eggs imported into the United Kingdom is given. As this market influences all the other countries throughout the year and takes large quantities of eggs of every quality, these values are indicative of general tendencies. As may be observed from the table, the fall in the price of eggs was followed by a rise, which continued from 1934 to 1938, almost attaining the 1933 level. In fact, prices in all the countries were appreciably higher in 1938 than in 1937, the price of 1,000 imported eggs having been 55.53 gold francs in 1938 against 53.29 in 1937.

XII. — *Prices per 1,000 eggs imported into the United Kingdom.*

Year	Gold francs
1938	55.53
1937	53.29
1936	50.89
1935	49.51
<i>Average 1930-1934</i>	86.16
1934	48.61
1933	56.47
1932	68.31
1931	103.56
1930	129.69

The intrinsic qualities of the product are such that, with the progress in poultry culture the trade in eggs has been able to develop and consolidate itself even in a period when international exchanges have been particularly difficult and thus to demonstrate the vitality of the poultry industry and of the trade in its products.

V. DESMIREANU.

Current information on Livestock and Derivatives.

France: The general condition of stock improves steadily as fodder supplies are becoming more abundant. The first fortnight of June was fairly favourable.

Latvia: Milk production again increased in May and is about 3 to 5 per cent. higher than in the corresponding period of last year.

Netherlands: In May feeding conditions for livestock were fairly good throughout the country. Compared with the corresponding month of last year, milk production in the country as a whole was about 3 per cent. higher. In North and South Holland production was about 1 per cent. lower, in Zeeland 4 per cent. lower and in Utrecht 7.5 per cent. lower. In the other provinces production was higher as follows: Friesland, Gelderland and North Brabant 3 to 5 per cent., Groningen, Drente, Overijssel and Limburg 7.5 to 10 per cent.

United Kingdom: Milk yields were about normal for the season.

Switzerland: The early start of pastures, the luxuriant growth of grasses and the fact that the number of cows is relatively large have created favourable conditions for milk production. In April milk deliveries were 4.9 per cent. higher than in April 1938. In May they were 2.2 per cent. higher than in May 1938.

French Morocco: Feed for livestock is assured in the south for a long time still by the cereal stubble, already harvested, and, on the whole, the condition of stock is very satisfactory.

Union of South Africa: April was generally fairly warm until the end of the month, when it turned cold. There was scattered rain in the winter rainfall areas. Grazing generally was good and the condition of sheep and other stock satisfactory.

Current information on Sericulture.

Italy: At the middle of June the sericultural season was ending. The last stages were on the whole favourable. Some cases of flaccidity and calcification were reported mainly owing to the very wet season.

The production of mulberry leaves was abundant at the end of May, although a little retarded as a result of low temperatures.

The latest reports indicate that the sericultural season in Italy terminated in fairly favourable conditions. Quality is satisfactory. The deliveries of cocoons to the compulsory collective centres began about the middle of June.

U. S. S. R.: On June 13 the Plan for cocoon deliveries in Turkmenistan, the principal producing region, was carried out 12 days earlier than last year. A total of 37,570,000 lb. has been acquired by the State and acquisitions continue.

In 1938 total cocoon production in the Union was 51,400,000 lb.

Japan: At the beginning of June the crop condition of mulberry trees was rather good, following favourable weather. The rearing of silkworms progressed in good conditions.

TRADE

COUNTRIES	APRIL				NINE MONTHS (August 1-April 30)				TWELVE MONTHS (August 1-July 31)	
	EXPORTS		IMPORTS		EXPORTS		IMPORTS		EXPORTS	IMPORTS
	1939	1938	1939	1938	1938-39	1937-38	1938-39	1937-38	1937-38	1937-38
Wheat. — Thousand centals (1 cental = 100 lb.).										
<i>Exporting Countries:</i>										
Bulgaria	45	170	0	0	120	3,740	0	0	4,666	0
Hungary	1,422	344	0	0	12,771	3,680	0	0	4,053	0
Lithuania	24	0	0	0	550	0	0	0	41	0
Poland-Danzig	100	1	0	22	597	35	65	183	36	241
Romania	1,719	934	0	0	19,626	17,505	0	0	19,305	0
Yugoslavia	221	7	0	0	3,093	2,351	0	0	2,352	0
U. S. S. R. . . . .	...	...	...	...	(6) 10,209	(6) 5,313	(6) 0	(6) 0	27,335	2,837
Canada	1,699	971	2	645	62,502	35,292	663	1,966	46,029	3,446
United States	3,525	3,930	521	4	35,337	38,089	4,321	1,215	53,456	1,323
Argentina	9,152	3,937	—	—	38,867	30,106	—	—	40,452	—
Chile . . . . .	...	...	...	...	(4) 0	(4) 0	(4) 4	(4) 0	0	1
Uruguay . . . . .	...	...	...	...	(4) 430	(4) 0	(4) 3	(4) 283	496	283
India: by sea	6	298	92	0	1,956	5,563	3,654	480	9,569	481
„ : by land . . . . .	...	...	...	...	(3) 230	(3) 175	(3) 83	(3) 134	433	196
Iraq . . . . .	...	...	...	...	(2) 465	(2) 607	(2) 0	(2) 1	1,076	1
Iran . . . . .	...	...	...	...	(1) 0	(1) 489	(1) 0	(1) 2	489	2
Manchukuo . . . . .	...	...	...	...	(3) 0	(3) 186	(3) 4	(3) 0	413	4
Syria and Lebanon	78	0	0	18	569	4	197	292	36	480
Turkey	12	192	—	—	1,067	1,124	—	—	2,115	—
Algeria	150	215	56	82	1,070	3,923	825	254	4,184	700
Egypt . . . . .	...	...	...	...	(1) 1	(1) 436	(1) 27	(1) 0	436	18
French Morocco . . . . .	...	...	...	...	(2) 1,943	(2) 989	(2) 0	(2) 287	1,731	289
Tunisia	155	233	0	0	1,707	2,118	7	39	2,764	40
Australia	3,721	10,003	0	0	27,226	40,333	0	0	56,017	0
<i>Importing Countries:</i>										
Germany (7) (8)	0	0	1,657	3,139	1	0	19,613	18,054	0	21,123
Austria (7) . . . . .	...	...	...	339	(2) 3	7	(2) 2,478	2,677	9	4,081
Belgo-Luxemb. E. U.	116	188	1,510	1,281	1,961	2,256	17,190	19,313	2,630	24,945
Bohemia-Moravia . . . . .	...	...	...	...	...	...	...	...	...	...
(Protectorate) (9)	(10) 112	57	(10) 12	251	498	860	403	1,431	860	2,793
Denmark	0	30	107	343	50	214	1,961	2,817	257	3,813
Spain . . . . .	...	...	...	...	...	...	...	...	...	...
Estonia	0	0	0	0	0	10	11	35	10	103
Finland	0	0	5	90	0	0	516	785	0	987
France	442	1	1,026	911	4,450	287	7,938	8,048	287	10,899
Greece . . . . .	...	...	...	...	(1) 0	(1) 0	(1) 3,735	(1) 6,168	0	10,920
Ireland	0	0	1,388	306	0	0	7,730	5,925	0	7,705
Italy	18	0	966	282	47	40	5,119	2,872	40	5,735
Latvia	0	0	0	0	0	0	295	273	0	592
Norway	0	0	332	302	0	0	2,703	2,500	0	3,246
Netherlands	0	0	1,044	1,064	20	16	11,400	9,818	16	12,667
Portugal	0	0	16	55	0	0	1,240	153	0	1,374
United Kingdom	69	40	8,352	7,667	1,148	843	92,546	77,182	1,286	108,330
Sweden	1	17	103	97	189	1,425	933	825	1,425	996
Switzerland	0	1	474	606	0	3	7,670	6,880	3	8,972
Brazil . . . . .	—	—	...	...	—	—	(3) 10,822	(3) 9,808	—	20,872
Colombia . . . . .	—	—	...	...	—	—	(5) 131	(5) 103	—	319
Peru . . . . .	...	...	...	...	(2) 0	(2) 0	(2) 1,535	(2) 1,799	0	3,003
Burma	3	1	1	12	7	4	55	90	6	127
Ceylon	—	—	1	3	—	—	89	69	—	79
China	110	0	1,991	0	307	0	4,228	0	2	0
Chosen . . . . .	...	...	...	...	(1) 0	(1) 4	(1) 74	(1) 1	5	22
Taiwan . . . . .	...	...	...	...	—	—	(3) 0	(3) 0	—	0
Indochina . . . . .	...	...	...	...	(1) 0	(1) 0	(1) 6	(1) 3	0	1
Japan . . . . .	—	—	...	...	—	—	(4) 233	(4) 1,575	—	2,802
British Malaya . . . . .	...	...	...	...	(1) 2	(1) 1	(1) 9	(1) 7	2	11
Palestine . . . . .	...	...	...	...	(1) 0	(1) 17	(1) 964	(1) 304	17	573
Union of South Africa . . . . .	...	...	...	...	(2) 0	(2) 4	(2) 1,026	(2) 6	4	555
New Zealand	0	0	197	471	0	0	1,160	2,150	0	2,717
Totals	22,900	21,570	19,853	17,990	229,019	198,049	213,667	186,807	286,343	270,704

(1) Up to March 31. — (2) Up to February 28. — (3) Up to January 31. — (4) Up to December 31. — (5) Up to November 30. — (6) Up to September 30. — (7) From January 1, 1938 to March 31, 1939, excluding trade between Germany and Austria. — (8) As from April 1, 1939 the data refer to the territory of the former Reich, Ostmark, the Sudetenland and Memel; they do not include trade between these territories and the Protectorate of Bohemia-Moravia. — (9) Up to March 15, the data refer to Czechoslovakia. — (10) The data cover the period from March 16 to April 30, 1939.

COUNTRIES	APRIL				NINE MONTHS (August 1-April 30)				TWELVE MONTHS (August 1-July 31)	
	EXPORTS		IMPORTS		EXPORTS		IMPORTS		EXPORTS	IMPORTS
	1939	1938	1939	1938	1938-39	1937-38	1938-39	1937-38	1937-38	1937-38
Wheat Flour. — Thousand centals (1 cental = 100 lb.).										
<i>Exporting Countries:</i>										
Bohemia-Moravia (Protectorate) (7) . . .	(8) 18	0	(8) 2	0	579	597	5	4	752	5
Bulgaria	1	0	0	0	3	41	0	0	46	0
Spain	—	—	—	—	—	—	—	—	—	—
France	442	123	85	89	2,977	1,206	663	719	1,605	962
Hungary	181	66	0	0	767	799	0	0	958	0
Italy	250	191	6	4	1,431	1,607	266	90	2,305	160
Latvia	0	0	0	0	0	9	0	0	15	0
Lithuania	0	0	0	0	30	0	0	0	5	0
Poland-Danzig	49	43	0	0	668	223	0	0	322	0
Romania	0	0	0	0	4	1	0	0	1	0
Yugoslavia	2	72	0	0	29	258	0	0	306	0
U. S. S. R.	—	—	—	—	(6) 292	(6) 315	(6) 15	(6) 22	949	52
Canada	539	362	6	13	6,436	5,353	112	125	7,077	172
United States	1,499	820	0	0	9,460	7,608	106	142	10,179	183
Argentina	220	115	—	—	1,504	1,304	—	—	1,768	—
Uruguay	—	—	—	—	(4) 175	(4) 0	(4) 0	(4) 0	225	0
Chosen	—	—	—	—	(4) 380	(4) 103	(4) 0	(4) 0	217	0
India: by sea	67	120	0	0	942	1,084	2	3	1,450	4
Iraq	—	—	—	—	(2) 95	(2) 83	(2) 0	(2) 0	116	1
Iran	—	—	—	—	(4) 0	(4) 0	(4) 0	(4) 0	0	0
Japan	—	—	—	—	(4) 2,749	(4) 2,623	(4) 0	(4) 11	6,168	22
Turquie	10	1	—	—	62	50	—	—	54	—
Algeria	43	56	4	13	357	471	111	51	657	113
French Morocco	—	—	—	—	(2) 0	(2) 0	(2) 0	(2) 0	0	0
Tunisia	27	26	15	3	279	239	101	93	310	112
Australia	1,472	1,363	0	0	10,649	9,576	0	1	12,976	1
<i>Importing Countries:</i>										
Germany (9) (10) . . .	18	0	59	95	31	28	705	1,004	84	1,277
Austria (9)	—	—	—	—	(2) 2	9	(2) 209	289	10	368
Belgo-Luxemb. E. U. . .	7	10	1	1	60	78	24	31	100	35
Denmark	4	1	48	23	26	22	423	191	29	295
Estonia	0	0	0	0	0	0	0	0	0	0
Finland	0	0	31	49	0	0	394	399	0	574
Greece	—	—	—	—	(1) 0	(1) 0	(1) 26	(1) 16	0	23
Ireland	0	0	8	8	0	0	85	90	0	118
Norway	0	0	59	58	4	2	612	519	3	684
Netherlands	0	1	163	123	4	188	1,246	1,119	191	1,472
Portugal	0	0	0	0	0	0	31	36	0	43
United Kingdom	163	162	745	871	1,895	1,487	6,552	6,838	2,049	8,815
Sweden	1	0	1	0	4	14	6	2	18	3
Haiti	—	—	15	16	—	—	135	140	—	169
Brazil	—	—	—	—	—	—	(3) 448	(3) 386	—	857
Chile	—	—	—	—	(4) 0	(4) 0	(4) 43	(4) 9	0	44
Colombia	—	—	—	—	—	—	(5) 7	(5) 4	—	15
Peru	—	—	—	—	(2) 0	(2) 0	(2) 24	(2) 20	0	38
Burma	0	0	42	86	1	2	478	512	3	633
Ceylon	—	—	30	22	—	—	285	223	—	322
China	173	0	1,077	434	567	0	4,279	1,889	0	3,680
Netherlands Indies:										
Java and Madura . . .	—	—	—	—	—	—	(1) 857	(1) 681	—	1,093
Outer Provinces . . .	—	—	—	—	—	—	(1) 491	(1) 451	—	644
Indochina	—	—	63	42	(1) 0	(1) 1	(1) 403	(1) 327	1	434
British Malaya	—	—	—	—	(1) 93	(1) 94	(1) 1,053	(1) 1,003	131	1,457
Manchukuo	—	—	—	—	(3) 0	(3) 170	(3) 3,398	(3) 1,717	202	2,897
Palestine	—	—	—	—	(1) 0	(1) 2	(1) 284	(1) 300	2	436
Syria and Lebanon . . .	15	0	6	9	77	18	78	84	32	105
Egypt	—	—	—	—	(1) 0	(1) 34	(1) 35	(1) 35	32	85
Union of South Africa . .	—	—	—	—	(2) 1	(2) 4	(2) 6	(2) 6	6	11
New Zealand	0	0	0	0	0	0	1	0	0	1
Totals . . .	5,201	3,532	2,475	1,993	42,633	35,699	23,998	19,582	51,354	28,415

(1) Up to March 31. — (2) Up to February 28. — (3) Up to January 31. — (4) Up to December 31. — (5) Up to November 30. — (6) Up to September 30. — (7) Up to March 15, 1939 the data refer to Czecho-Slovakia. — (8) The data cover the period from March 16 to April 30, 1939. — (9) From January 1, 1938 to March 31, 1939, excluding trade between Germany and Austria. — (10) As from April 1, 1939 the data refer to the territory of the former Reich, Ostmark, the Sudetenland and Memel; they do not include trade between these territories and the Protectorate of Bohemia-Moravia.

COUNTRIES	APRIL				NINE MONTHS (August 1-April 30)				TWELVE MONTHS (August 1-July 31)	
	NET EXPORTS *		NET IMPORTS **		NET EXPORTS *		NET IMPORTS **		NET EX. *	NET IM. **
	1939	1938	1939	1938	1938-39	1937-38	1938-39	1937-38	1937-38	1937-38
Total Wheat and Flour †. — Thousand centals (1 cental = 100 lb.).										
Germany (7) (8) . . .	—	—	1,711	3,264	—	—	20,512	19,354	—	22,714
Austria (7) . . .	—	—	—	379	—	—	(2) 2,752	3,042	—	4,549
Belgo-Luxemb. E. U. . .	—	—	1,398	1,080	—	—	15,182	16,994	—	22,228
Bohemia-Moravia (Protectorate) (9) . .	(10) 122	—	—	193	861	820	—	—	—	936
Bulgaria . . .	46	170	—	—	124	3,795	—	—	4,727	—
Denmark . . .	—	—	165	344	—	—	2,439	2,829	—	3,910
Spain . . .	—	—	—	—	—	—	—	—	—	—
Estonia . . .	—	—	0	0	—	—	11	25	—	93
Finland . . .	—	—	47	156	—	—	1,042	1,317	—	1,753
France . . .	—	—	109	864	—	—	403	7,112	—	9,754
Greece . . .	—	—	—	—	—	—	(1) 3,769	(1) 6,189	—	10,951
Hungary . . .	1,663	432	—	—	13,792	4,746	—	—	5,331	—
Ireland . . .	—	—	1,400	317	—	—	7,843	6,046	—	7,861
Italy . . .	—	—	623	34	—	—	3,519	809	—	2,833
Latvia . . .	—	0	—	—	—	—	295	261	—	571
Lithuania . . .	24	0	—	—	590	0	—	—	48	—
Norway . . .	—	—	410	379	—	—	3,513	3,191	—	4,155
Netherlands . . .	—	—	1,261	1,227	—	—	13,036	11,043	—	14,368
Poland-Danzig . . .	165	36	—	—	1,422	149	—	—	225	—
Portugal . . .	—	—	17	59	—	—	1,282	201	—	1,431
Romania . . .	1,719	934	—	—	19,631	17,507	—	—	19,307	116,072
United Kingdom . . .	—	—	9,058	8,573	—	—	97,607	83,474	—	—
Sweden . . .	—	—	103	79	—	616	746	—	449	—
Switzerland (11) . . .	—	—	474	605	—	—	7,669	6,877	—	8,969
Yugoslavia . . .	224	102	—	—	3,132	2,694	—	—	2,758	—
Totals Europe . . .	3,963	1,674	16,776	17,553	39,552	29,727	181,620	168,764	32,845	233,148
U. S. S. R. . . .	—	—	—	—	(6) 10,579	(6) 5,704	—	—	25,694	—
Canada . . .	2,408	791	—	—	70,271	40,297	—	—	51,789	—
United States . . .	5,002	5,020	—	—	43,489	46,827	—	—	67,534	—
Haiti . . .	—	—	20	21	—	—	180	187	—	226
Argentina . . .	9,446	4,090	—	—	40,873	31,845	—	—	42,810	—
Brazil . . .	—	—	—	—	—	—	(3) 11,420	(3) 10,322	—	22,015
Chile . . .	—	—	—	—	—	—	(4) 61	(4) 12	—	59
Colombia . . .	—	—	—	—	—	—	(5) 141	(5) 108	—	340
Peru . . .	—	—	—	—	—	—	(2) 1,567	(2) 1,826	—	3,054
Uruguay . . .	—	—	—	—	(4) 661	—	—	(4) 282	513	—
Burma . . .	—	—	54	125	—	—	684	765	—	961
Ceylon . . .	—	—	40	32	—	—	469	366	—	508
China . . .	—	—	3,086	579	—	—	8,870	2,519	—	4,904
Chosen . . .	—	—	—	—	(1) 433	(1) 139	—	—	257	—
Taiwan . . .	—	—	—	—	—	—	(3) 0	(3) 0	—	0
India: by sea . . .	3	457	—	—	—	6,524	444	—	11,017	—
„ : by land . . .	—	—	—	—	(3) 146	(3) 41	—	—	236	—
Netherlands Indies:	—	—	—	—	—	—	(1) 1,143	(1) 908	—	1,457
Java and Madura . . .	—	—	—	—	—	—	(1) 655	(1) 602	—	858
Outer Provinces . . .	—	—	—	—	—	—	(1) 458	(1) 379	—	579
Indochina . . .	—	—	—	—	(2) 591	(2) 716	—	—	1,229	—
Iraq . . .	—	—	—	—	(2) 487	(2) 0	—	—	487	—
Iran . . .	—	—	—	—	(4) 3,432	(4) 1,907	—	—	5,393	—
Japan . . .	—	—	—	—	—	—	(1) 1,287	(1) 1,218	—	1,777
British Malaya . . .	—	—	—	—	—	—	(3) 4,534	(3) 1,877	—	3,185
Manchukuo . . .	—	—	—	—	—	—	(1) 1,342	(1) 685	—	1,135
Palestine . . .	—	—	—	—	—	—	—	376	—	542
Syria and Lebanon . . .	90	—	—	29	371	—	—	—	—	—
Turkey . . .	25	194	—	—	1,149	1,191	—	—	2,187	—
Algeria . . .	146	190	—	—	574	4,229	—	—	4,210	—
Egypt . . .	—	—	—	—	—	(2) 430	(1) 71	—	348	—
French Morocco . . .	—	—	—	—	(2) 1,943	(2) 702	—	—	1,442	—
Tunisia . . .	171	263	—	—	1,938	2,274	—	—	2,988	—
Union of South Africa . . .	—	—	—	—	—	—	(2) 1,032	(2) 4	—	559
Australia . . .	5,684	11,820	—	—	41,424	53,100	—	—	73,318	—
New Zealand . . .	—	—	197	471	—	—	1,160	2,150	—	2,686
Totals . . .	26,938	24,499	20,173	18,810	257,426	226,140	217,138	193,350	324,297	277,993

* Excess of exports over imports. — ** Excess of imports over exports.

† Flour reduced to grain on the basis of the coefficient: 1,000 centals of flour = 1,333.333 centals of grain.

(1) Up to March 31. — (2) Up to February 28. — (3) Up to January 31. — (4) Up to December 31. — (5) Up to November 30.
 — (6) Up to September 30. — (7) From January 1, 1938 to March 31, 1939, excluding trade between Germany and Austria. —
 (8) As from April 1, 1939 the data refer to the territory of the former Reich, Ostmark, the Sudetenland and Memel; they do not include trade between these territories and the Protectorate of Bohemia-Moravia. — (9) Up to March 15, 1939 the data refer to Czechoslovakia. — (10) The data cover the period from March 16, to April 30, 1939. — (11) Wheat only.

COUNTRIES	APRIL				NINE MONTHS (August 1-April 30)				TWELVE MONTHS (August 1-July 31)	
	EXPORTS		IMPORTS		EXPORTS		IMPORTS		EXPORTS	IMPORTS
	1939	1938	1939	1938	1938-39	1937-38	1938-39	1937-38	1937-38	1937-38
<i>Exporting Countries:</i>										
Bulgaria	0	11	0	0	0	158	0	0	158	0
Spain	—	—	—	—	—	—	—	—	—	—
Hungary	30	158	0	0	258	1,258	0	0	1,629	0
Latvia	0	0	0	0	0	0	0	0	0	0
Lithuania	26	209	0	0	1,315	518	1	0	1,084	0
Netherlands	4	25	342	86	970	1,267	996	872	1,617	1,308
Poland-Danzig	1,302	0	0	3	5,986	47	0	9	228	13
Romania	206	41	0	0	437	3,935	0	0	4,090	0
Yugoslavia	0	1	0	0	0	154	0	0	156	0
U. S. S. R. . . . .	...	...	...	..	(3) 1,428	(3) 846	(3) 0	(3) 0	8,314	0
Canada	0	0	0	0	469	233	0	35	363	35
United States	0	221	0	0	374	3,079	0	0	3,585	0
Argentina	530	0	—	—	1,053	53	—	—	96	—
Algeria	1	0	0	0	32	11	0	0	15	0
<i>Importing Countries:</i>										
Germany (4) (5)	43	0	63	116	45	0	2,242	1,392	0	1,596
Austria (4)	1	1	178	(2) 3	13	(2) 104	3,625	15	4,131	
Belgo-Luxemb. E.U.	6	10	824	132	26	84	5,518	1,280	90	2,462
Bohemia-Moravia (Protectorate) (6)	(7) 110	0	(7) 4	332	110	2	528	2,534	3	4,148
Denmark	0	0	97	138	1	2	1,465	2,030	11	3,045
Estonia	0	28	0	0	127	29	182	239	102	325
Finland	0	0	0	48	0	0	260	517	0	668
France	0	0	1	0	0	0	31	12	0	17
Greece . . . . .	...	...	...	...	(1) 0	(1) 0	(1) 0	(1) 1	0	1
Italy	0	0	150	44	0	0	847	76	0	319
Norway	0	0	222	445	0	0	2,025	1,943	0	2,617
United Kingdom	0	0	27	7	2	3	107	104	3	125
Sweden	0	0	7	30	1	1	92	44	1	108
Switzerland	0	0	1	20	0	0	280	175	0	295
Palestine . . . . .	—	—	...	...	—	—	(1) 116	(1) 85	—	147
French Morocco . . . . .	...	...	...	...	(2) 0	(2) 0	(2) 0	(2) 0	0	0
Totals	2,258	705	1,738	1,579	12,637	11,693	14,794	14,973	21,560	21,360

(1) Up to March 31. — (2) Up to February 28. — (3) Up to September 30. — (4) From January 1, 1938 to March 31, 1939, excluding trade between Germany and Austria. — (5) As from April 1, 1939 the data refer to the territory of the former Reich, Ostmark, the Sudetenland and Memel; they do not include trade between these territories and the Protectorate of Bohemia-Moravia. — (6) Up to March 15, 1939, the data refer to Czecho-Slovakia. — (7) The data cover the period from March 16, to April 30, 1939.

COUNTRIES	APRIL				NINE MONTHS (August 1-April 30)				TWELVE MONTHS (August 1-July 31)	
	EXPORTS		IMPORTS		EXPORTS		IMPORTS		EXPORTS	IMPORTS
	1939	1938	1939	1938	1938-39	1937-38	1938-39	1937-38	1937-38	1937-38
Barley. — Thousand centals (1 cental = 100 lb.).										
<i>Exporting Countries:</i>										
Bohemia-Moravia (Protector.) (6) . .	(7) 212	52	(7) 6	0	1,249	596	6	1	1,009	1
Bulgaria	0	0	0	0	0	256	0	0	256	0
Denmark	188	88	0	147	2,641	3,159	9	445	3,335	670
Spain	—	—	—	—	—	—	—	—	—	—
Hungary	3	1	0	0	86	151	0	0	170	0
Latvia	0	0	0	0	36	0	0	3	0	3
Lithuania	9	35	0	0	276	123	0	0	273	0
Poland - Danzig . .	386	525	0	0	5,146	3,688	0	0	4,605	0
Romania	254	315	0	0	2,835	4,799	0	0	5,107	0
Sweden	0	0	0	0	2	1	0	0	1	0
Yugoslavia	0	1	0	0	0	129	21	11	132	11
U. S. S. R.	—	—	—	—	(5) 4,534	(5) 2,946	(5) 0	(5) 0	6,402	0
Canada	160	134	0	0	6,315	5,155	1	0	7,077	0
United States . . .	58	622	0	5	4,528	6,632	1	450	8,747	506
Argentina	832	212	—	—	3,631	4,309	—	—	4,831	—
Chile	—	—	—	—	(4) 310	(4) 37	—	—	1,403	—
India: by sea . . .	1	1	8	0	37	310	54	32	476	39
Iraq	—	—	—	—	(2) 2,475	(2) 2,870	(2) 0	(2) 1	4,150	1
Iran	—	—	—	—	(1) 54	(1) 219	(1) 0	(1) 0	279	0
Manchukuo	—	—	—	—	(3) 1	(3) 17	—	—	22	—
Syria and Lebanon .	55	6	0	7	782	88	14	33	242	37
Turkey	109	141	—	—	2,050	2,467	—	—	2,846	—
Algeria	24	20	43	14	209	355	169	185	462	198
Egypt	—	—	—	—	(1) 68	(1) 77	(1) 15	(1) 0	116	1
French Morocco . .	—	—	—	—	(2) 836	(2) 0	(2) 0	(2) 434	41	628
Union of South Afr.	—	—	—	—	(2) 0	(2) 0	(2) 0	(2) 0	0	0
Australia	105	157	0	0	987	2,122	0	0	2,568	0
<i>Importing Countries:</i>										
Germany (8) (9) . .	0	0	780	1,421	1	0	7,171	5,733	0	7,695
Austria (8)	—	—	—	26	(2) 0	1	(2) 675	539	2	893
Belgo-Luxemb. E. U.	16	58	824	448	196	506	8,814	8,133	573	9,503
Estonia	0	0	0	34	0	0	4	90	0	94
Finland	0	0	0	0	0	0	0	2	0	2
France	6	0	101	150	47	4	1,168	1,714	6	1,945
Greece	—	—	—	—	(1) 0	(1) 0	(1) 331	(1) 9	0	35
Ireland	0	0	117	0	0	14	359	271	14	384
Italy	7	0	128	50	28	3	680	647	7	1,005
Norway	0	0	60	2	0	0	345	277	0	281
Netherlands	33	16	356	292	843	664	3,606	4,086	677	5,504
United Kingdom . .	0	0	1,269	1,477	3	5	17,080	18,146	7	22,235
Switzerland	0	0	192	236	0	0	2,756	2,618	0	3,228
Burma	—	—	0	0	—	—	4	4	—	5
Ceylon	—	—	1	0	—	—	9	5	—	7
Chosen	—	—	—	—	(1) 0	(1) 21	(1) 0	(1) 2	23	4
Indochina	—	—	—	—	(1) 0	(1) 0	(1) 0	(1) 0	0	0
Japan	—	—	—	—	—	—	(4) 0	(4) 25	—	54
Palestine	—	—	—	—	(1) 6	(1) 58	(1) 233	(1) 82	58	144
Tunisia	0	48	1	0	4	765	128	10	829	17
New Zealand	0	0	43	71	0	0	104	236	0	288
Totals	2,457	2,432	3,929	4,380	40,216	42,547	43,757	44,224	56,746	55,418

(1) Up to March 31. — (2) Up to February 28. — (3) Up to January 31. — (4) Up to December 31. — (5) Up to September 30. — (6) Up to March 15, 1939, the data refer to Czechoslovakia. — (7) The data cover the period from March 16 to April 30, 1939. — (8) From January 1, 1938 to March 31, 1939, excluding trade between Germany and Austria. — (9) As from April 1, 1939 the data refer to the territory of the former Reich, Ostmark, the Sudetenland and Memel; they do not include trade between these territories and the Protectorate of Bohemia-Moravia.

COUNTRIES	APRIL				NINE MONTHS (August 1-April 30)				TWELVE MONTHS (August 1-July 31)	
	EXPORTS		IMPORTS		EXPORTS		IMPORTS		EXPORTS	IMPORTS
	1939	1938	1939	1938	1938-39	1937-38	1938-39	1937-38	1937-38	1937-38
Oats. — Thousand centals (1 cental = 100 lb.).										
<i>Exporting Countries:</i>										
Bohemia-Moravia (Protectorate) (6)	(7) 7	74	(7) 0	0	560	753	2	3	864	3
Bulgaria	0	0	0	0	0	2	0	0	2	0
Hungary	0	0	0	0	0	0	0	0	0	0
Lithuania	19	0	0	0	552	0	0	0	17	0
Poland-Danzig	143	24	0	0	480	155	0	0	186	0
Romania	0	0	0	0	0	6	0	0	6	0
Yugoslavia	0	0	0	0	0	114	0	1	114	1
U. S. S. R.	...	...	...	...	(5) 10	(5) 5	(5) 0	(5) 0	61	0
Canada	146	31	3	138	2,200	1,110	1,133	2,978	1,624	4,014
United States	5	338	89	0	1,184	2,853	147	3	3,797	3
Argentina	611	324	—	—	4,576	7,522	—	—	9,071	—
Chile	...	...	...	...	(3) 287	(3) 306	(3) 0	(3) 0	1,177	0
Chosen	...	...	...	...	(1) 1	(1) 22	(1) 0	(1) 1	118	2
India: by sea	1	2	—	—	17	16	—	—	22	—
French Morocco	...	...	...	...	(2) 375	(2) 167	(2) 0	(2) 3	440	3
Tunisia	14	24	0	0	126	267	0	0	318	0
Union of South Afr.	...	...	...	...	(2) 3	(2) 9	(2) 0	(2) 0	11	0
Australia	3	2	0	0	28	69	3	1	86	2
New Zealand	0	0	0	1	3	2	2	13	2	14
<i>Importing Countries:</i>										
Germany (8) (9)	0	0	198	722	1	0	1,655	2,475	0	3,314
Austria (8)	0	0	37	201	(2) 0	0	(2) 586	318	1	417
Belgo-Luxemb. E. U.	0	0	87	201	1	2	432	738	2	1,124
Denmark	2	4	2	282	182	187	101	806	223	1,114
Estonia	0	0	0	41	0	0	3	49	0	73
Finland	0	0	0	4	0	0	20	118	0	144
France	1	0	38	31	10	5	236	372	7	493
Greece	...	...	...	...	(1) 0	(1) 0	(1) 0	(1) 22	0	22
Ireland	0	0	0	0	3	0	0	0	30	0
Italy	0	0	33	22	5	24	97	355	65	372
Latvia	0	0	0	0	123	0	1	0	0	0
Norway	0	0	1	0	0	0	2	8	0	9
Netherlands	37	35	117	50	361	499	679	1,189	784	1,524
United Kingdom	1	3	77	87	23	23	1,540	865	28	1,324
Sweden	16	7	6	120	30	38	33	336	38	386
Switzerland	0	0	480	435	0	0	3,459	3,824	0	4,678
Uruguay	...	...	...	...	(4) 0	(4) 15	(4) 0	(4) 0	15	0
Ceylon	—	—	2	2	—	—	13	11	—	15
Indochina	...	...	...	...	(1) 0	(1) 0	(1) 0	(1) 1	0	2
Japan	—	—	...	...	—	—	(3) 0	(3) 0	—	1
Syria and Lebanon	0	0	0	1	3	9	2	1	9	1
Algeria	1	0	15	64	13	3	449	404	16	473
Egypt	—	—	...	...	—	—	(1) 0	(1) 0	—	0
Totals	1,007	868	1,148	2,238	11,157	14,173	10,595	14,895	19,134	19,528

(1) Up to March 31. — (2) Up to February 28. — (3) Up to December 31. — (4) Up to November 30. — (5) Up to September 30. — (6) Up to March 15, 1939, the data refer to Czecho-Slovakia. — (7) The data cover the period from March 16 to April 30, 1939. — (8) From January 1, 1938 to March 31, 1939, excluding trade between Germany and Austria. — (9) As from April 1, 1939 the data refer to the territory of the former Reich, Ostmark, the Sudetenland and Memel; they do not include trade between these territories and the Protectorate of Bohemia-Moravia.

COUNTRIES	APRIL				SIX MONTHS (November 1-April 30)				TWELVE MONTHS (Nov. 1-Oct. 31)	
	EXPORTS		IMPORTS		EXPORTS		IMPORTS		EXPORTS	IMPORTS
	1939	1938	1939	1938	1938-39	1937-38	1938-39	1937-38	1937-38	1937-38
Maize. — Thousand centals (1 cental = 100 lb.).										
<i>Exporting Countries:</i>										
Bulgaria	0	539	0	0	0	1,115	0	0	1,394	0
Hungary	115	642	0	0	381	3,966	0	0	4,223	226
Romania	1,075	380	0	0	7,404	566	0	0	2,788	0
Yugoslavia	393	3,370	0	0	951	10,778	0	0	13,850	0
U. S. S. R. . . . .	...	...	...	...	...	...	...	...	...	...
United States	915	11,397	27	31	13,871	36,085	119	290	80,298	365
Haiti	0	0	—	—	1	1	—	—	5	—
Dominican Republic . . . . .	...	...	—	—	(3) 108	(3) 67	—	—	264	—
Argentina	6,733	1,063	—	—	28,252	24,104	—	—	66,057	—
Brazil . . . . .	...	...	—	—	(3) 654	(3) 459	—	—	2,678	—
Burma	62	20	—	—	100	48	—	—	276	—
China	0	0	—	—	26	0	—	—	0	—
India: by sea	0	0	—	—	1	1	—	—	2	—
Netherlands Indies:	...	...	—	—	...	...	—	—	...	...
Java and Madura . . . . .	...	...	—	—	(1) 832	(1) 410	—	—	1,209	—
Outer Provinces . . . . .	...	...	—	—	(1) 221	(1) 351	—	—	1,022	—
Indochina	444	406	—	—	4,208	4,702	—	—	12,554	—
Iraq . . . . .	...	...	—	—	(2) 1	(2) 15	—	—	20	—
Manchukuo . . . . .	...	...	—	—	(3) 1,467	(3) 1,444	—	—	5,146	—
Syria and Lebanon	10	0	0	0	42	16	9	1	18	1
Turkey	0	0	0	0	1	6	0	0	23	0
Egypt . . . . .	...	...	...	...	(1) 2	(1) 6	(1) 9	(1) 0	7	114
Madagascar	9	13	0	0	53	30	0	0	1,180	0
French Morocco . . . . .	...	...	...	...	(2) 0	(2) 0	(2) 0	(2) 390	0	479
Union of South Afr. . . . .	...	...	...	...	(1) 2,409	(1) 3,404	(2) 8	(2) 2	6,593	9
<i>Importing Countries:</i>										
Germany (5) (6)	0	0	532	2,591	0	0	3,989	25,010	0	53,440
Austria (5) . . . . .	...	...	...	423	(2) 0	0	(2) 2,121	2,907	0	6,746
Belgo-Luxemb. E. U.	1	57	870	679	181	305	6,112	8,093	639	14,891
Bohemia-Moravia (Protectorate) (7)	(8) 0	31	(8) 18	139	0	110	735	447	198	1,072
Denmark	0	0	66	515	1	4	1,211	5,098	114	8,278
Spain	—	—	—	—	—	—	—	—	—	—
Estonia	0	0	0	0	0	0	0	62	0	62
Finland	0	0	0	106	0	0	557	909	0	1,497
France	7	2	710	851	12	7	8,453	10,096	14	16,807
Greece . . . . .	...	...	...	...	(1) 0	(1) 0	(1) 656	(1) 170	0	924
Ireland	0	0	604	286	0	0	4,227	3,231	0	7,616
Italy	11	0	346	30	28	1	962	401	2	1,137
Latvia	0	0	0	0	0	0	0	0	0	0
Norway	0	0	81	150	0	3	1,215	1,828	5	3,536
Netherlands	0	1	1,349	1,322	0	5	8,806	11,951	8	21,060
Poland-Danzig	0	0	0	0	0	0	0	47	0	60
Portugal	0	0	22	88	0	0	448	713	0	1,223
United Kingdom	264	194	4,232	3,455	1,380	1,248	31,730	38,899	2,790	71,039
Sweden	0	0	32	290	0	0	377	1,956	0	4,166
Switzerland	0	0	116	54	0	0	1,062	1,198	0	2,306
Canada	0	0	215	87	2	2	2,635	1,950	2	3,811
Peru . . . . .	...	...	...	...	(2) 0	(2) 0	(2) 0	(2) 1	2	3
Chosen . . . . .	...	...	...	...	(1) 8	(1) 3	(1) 58	(1) 22	102	22
Japan . . . . .	...	...	...	...	—	—	(4) 950	(4) 717	—	5,451
Palestine . . . . .	...	...	...	...	(1) 0	(1) 16	(1) 64	(1) 30	29	127
Algeria	1	0	1	1	37	6	94	25	8	41
Tunisia	0	0	8	0	0	0	152	143	0	222
Australia	0	0	0	0	0	0	0	27	158	27
New Zealand	0	0	0	0	0	0	3	0	0	2
Totals	10,040	18,115	9,229	11,098	62,634	89,284	76,753	116,654	203,678	226,760

(1) Up to March 31. — (2) Up to February 28. — (3) Up to January 31. — (4) Up to December 31. — (5) From January 1, 1938 to March 31, 1939, excluding trade between Germany and Austria. — (6) As from April 1, 1939 the data refer to the territory of the former Reich, Ostmark, the Sudetenland and Memel; they do not include trade between these territories and the Protectorate of Bohemia-Moravia. — (7) Up to March, 15, 1939, the data refer to Czecho-Slovakia. — (8) The data cover the period from March 16 to April 30, 1939.

COUNTRIES	APRIL				FOUR MONTHS (January - April 30)				TWELVE MONTHS (January 1-Dec. 31)	
	EXPORTS		IMPORTS		EXPORTS		IMPORTS		EXPORTS	IMPORTS
	1939	1938	1939	1938	1939	1938	1939	1938	1938	1938
Rice. — Thousand cents (1 cental = 100 lb.).										
<i>Exporting Countries:</i>										
Spain	—	—	0	—	—	—	—	—	—	—
Italy	209	335	—	0	1,338	1,260	0	2	3,497	4
United States . . .	294	160	91	61	1,222	875	249	202	3,254	581
Brazil	—	—	—	—	(3) 95	(3) 81	—	—	1,236	—
Burma	9,065	8,688	3	3	34,569	28,520	10	9	63,090	27
Chosen	—	—	—	—	(1) 659	(1) 43	0	(1) 0	1,039	0
Taiwan	—	—	—	—	(3) 4	(3) 0	0	(3) 0	223	0
Indochina	4,915	1,750	—	—	14,293	9,406	(1) 77	(1) 68	22,309	263
Iraq	—	—	—	—	(2) 5	(2) 1	(2) 0	(2) 0	89	0
Iran	—	—	—	—	(1) 0	(1) 373	5	(1) 3	705	12
Siam	3,102	3,389	—	—	13,432	12,496	(1) —	(1) —	32,151	—
Egypt	—	—	—	—	(1) 885	(1) 272	0	(1) 0	1,442	202
Madagascar . . .	16	15	0	0	53	45	0	0	250	0
Australia	12	10	2	2	70	57	23	10	280	27
<i>Importing Countries:</i>										
Germany (6) (7) . .	54	34	608	421	(2) 139	104	2,057	1,388	503	6,077
Austria (6)	—	—	—	17	0	0	(2) 134	105	0	474
Belgo-Luxemb. E. U.	39	24	257	216	153	89	601	438	328	1,565
Bohemia-Moravia (Protectorate) (8).	(9) 0	0	(9) 24	40	0	0	201	146	0	1,052
Denmark	0	0	3	22	0	0	27	69	3	309
Estonia	—	—	2	1	—	—	6	5	—	24
Finland	—	—	0	17	—	—	39	75	—	297
France	8	33	1,514	1,100	(1) 40	(1) 93	2,967	3,789	386	13,250
Greece	—	—	—	67	(1) 0	(1) 0	(1) 170	(1) 185	0	625
Hungary	0	0	8	9	0	0	149	81	0	397
Ireland	0	0	15	3	0	0	34	29	0	77
Latvia	0	0	5	0	0	0	13	7	0	22
Lithuania	0	0	0	0	0	0	4	2	0	13
Norway	0	0	17	15	3	0	44	27	0	100
Netherlands	198	123	1,079	523	601	627	1,683	868	2,059	3,800
Poland-Danzig . . .	0	5	0	5	8	40	3	135	129	1,064
Portugal	0	0	4	4	0	0	12	15	1	69
Romania	—	—	—	—	—	—	(2) 62	(2) 60	—	516
United Kingdom . .	12	11	351	369	38	24	839	737	98	3,013
Sweden	—	—	6	17	—	—	27	74	—	263
Switzerland	0	0	60	46	0	0	181	136	0	505
Yugoslavia	0	0	19	29	0	0	170	137	0	497
U. S. S. R.	—	—	—	—	—	—	—	—	(5) 30	(5) 881
Canada	3	0	39	52	7	4	153	156	7	592
Haiti	—	—	2	2	—	—	4	6	—	18
Argentina	—	—	—	—	(1) 1	(1) 0	(1) 153	(1) 151	1	1,108
Chile	—	—	—	—	—	—	—	—	—	271
Colombia	—	—	—	—	—	—	—	—	(4) —	238
Peru	—	—	—	—	(2) 2	(2) 0	(2) 41	(2) 131	0	714
Ceylon	0	0	1,114	866	1	1	4,805	4,272	2	11,918
China	8	1	808	1,693	137	5	2,372	4,154	10	8,953
India: by sea	663	842	4,364	2,969	2,488	2,236	17,387	9,699	5,915	24,295
by land	—	—	—	—	(1) 45	(1) 61	(1) 153	(1) 203	469	1,786
Netherlands Indies:	—	—	—	—	—	—	—	—	—	—
Java and Madura . .	—	—	—	—	(1) 19	(1) 12	(1) 0	(1) 72	176	454
Outer Provinces . .	—	—	—	—	(1) 48	(1) 39	(1) 1,444	(1) 1,587	189	6,845
Japan	—	—	—	—	—	—	—	—	184	500
British Malaya . . .	—	—	—	—	(1) 1,179	(1) 1,101	(1) 5,035	(1) 4,473	4,562	18,662
Manchukuo	—	—	—	—	(3) 1	(3) 20	(3) 148	(3) 12	304	1,277
Palestine	—	—	—	—	(1) 34	(1) 16	(1) 166	(1) 97	119	495
Syria and Lebanon . .	0	0	27	32	0	0	139	107	1	384
Turkey	—	—	0	0	—	—	0	0	—	0
Algeria	1	5	150	248	79	10	188	432	65	1,088
French Morocco . . .	—	—	—	—	—	—	(2) 21	(2) 42	—	236
Tunisia	0	0	1	137	0	0	5	394	1	502
Union of South Afr. .	—	—	—	—	(2) 0	(2) 0	(2) 177	(2) 160	0	1,311
New Zealand	0	0	9	13	0	0	26	31	0	64
Totals	18,599	15,425	10,584	9,009	71,648	57,911	42,210	34,981	145,107	117,717

(1) Up to March 31. — (2) Up to February 28. — (3) Up to January 31. — (4) Up to November 30. — (5) Up to October 31. — (6) From January 1, 1938, to March 15, 1939, excluding trade between Germany and Austria. — (7) As from April 1, 1939, the data refer to the territory of the former Reich, Ostmark, the Sudetenland and Memel; they do not include trade between these territories and the Protectorate of Bohemia-Moravia. — (8) Up to March 15, 1939, the data refer to Czechoslovakia. — (9) The data cover the period from March 16 to April 30, 1939.

COUNTRIES	APRIL				FOUR MONTHS (January 1-April 30)				TWELVE MONTHS (January 1-Dec. 31)	
	EXPORTS		IMPORTS		EXPORTS		IMPORTS		EXPORTS	IMPORTS
	1939	1938	1939	1938	1939	1938	1939	1938	1938	1938
Linseed. — Thousand centals (1 cental = 100 lb.).										
<i>Exporting Countries:</i>										
Latvia	5	0	0	0	62	38	24	7	74	17
Lithuania	6	2	0	0	133	47	0	0	125	0
Romania . . . . .	...	...	...	...	(2) 0	(2) 0	(2) 0	(2) 2	0	5
Argentina	1,605	1,773	—	—	12,677	10,404	—	—	27,764	—
Uruguay	380	105	—	—	1,150	445	—	—	1,538	—
China	10	29	—	—	24	52	—	—	160	—
India: by sea	376	687	0	0	1,900	1,511	0	0	6,408	1
„ : by land . . . . .	—	—	...	...	—	—	(3) 17	(3) 4	—	326
Iraq . . . . .	...	...	—	—	(2) 7	(2) 1	—	—	82	—
Egypt . . . . .	...	...	...	...	(1) 0	(1) 2	(1) 0	(1) 0	4	6
French Morocco . . . . .	...	...	—	—	(2) 22	(2) 26	—	—	127	—
Tunisia	0	0	0	0	1	0	0	0	0	0
New Zealand	0	0	0	0	0	0	0	0	0	0
<i>Importing Countries:</i>										
Germany (4) (5)	0	0	599	313	0	0	1,411	1,343	0	3,418
Austria (4)	0	0	—	0	(2) 0	0	(2) 0	2	0	4
Belgo-Luxemb. E.U.	22	7	282	104	80	56	1,306	711	93	1,886
Bohemia-Moravia (Protectorate) (6) (7)	0	0	(7) 20	58	0	0	94	151	0	385
Denmark	0	0	78	69	0	1	237	178	1	372
Spain	—	—	—	—	—	—	—	—	—	—
Estonia	0	0	0	0	3	5	0	0	5	0
Finland	0	0	16	22	0	0	67	72	0	177
France	0	0	474	756	1	0	1,906	2,031	2	4,480
Greece . . . . .	...	...	...	...	(1) 0	(1) 0	(1) 13	(1) 8	0	75
Hungary	0	0	0	0	0	0	33	50	0	65
Ireland	0	0	15	13	0	0	55	55	0	139
Italy	0	0	112	80	0	0	365	464	0	1,160
Norway	0	0	11	24	0	0	191	175	0	463
Netherlands	7	5	1,018	779	112	85	2,978	2,822	124	6,572
Poland-Danzig	0	0	10	0	0	0	10	0	0	0
Portugal	—	—	0	47	—	—	11	78	—	152
United Kingdom	0	0	634	449	0	0	2,335	1,817	0	6,191
Sweden	—	—	89	121	—	—	417	355	—	1,074
Yugoslavia	0	0	21	11	0	0	89	70	0	216
Canada	0	0	14	40	6	5	114	187	7	399
United States	—	—	793	574	—	—	4,372	3,216	—	8,604
Burma	0	0	0	0	0	0	0	0	0	0
Japan . . . . .	...	...	...	...	...	...	...	...	2	177
Palestine . . . . .	—	—	...	...	—	—	(1) 10	(1) 5	—	14
Algeria	0	0	0	0	0	0	0	0	0	1
Australia	0	0	17	12	0	0	219	144	0	725
Totals	2,411	2,608	4,203	3,472	16,178	12,578	16,274	13,947	36,516	37,104

(1) Up to March 31. — (2) Up to February 28. — (3) Up to January 31. — (4) From January 1, 1938 to March 31, 1939, excluding trade between Germany and Austria. — (5) As from April 1, 1939 the data refer to the territory of the former Reich, Ostmark, the Sudeteland and Memel; they do not include trade between these territories and the Protectorate of Bohemia-Moravia. — (6) Up to March 15, 1939, the data refer to Czecho-Slovakia. — (7) The data cover the period from March 16 to April 30, 1939.

COUNTRIES	APRIL				NINE MONTHS (August 1-April 30)				TWELVE MONTHS (August 1-July 31)	
	EXPORTS		IMPORTS		EXPORTS		IMPORTS		EXPORTS	IMPORTS
	1939	1938	1939	1938	1938-39	1937-38	1938-39	1937-38	1937-38	1937-38
Cotton. — Thousand centals (1 cental = 100 lb.).										
<i>Exporting Countries:</i>										
United States	934	1,992	63	96	15,656	26,893	541	494	29,882	795
Haiti	22	30	—	—	83	80	—	—	105	—
Dominican Republic	—	—	—	—	(3) 1	(3) 0	—	—	3	—
Argentina	0	0	—	—	349	71	—	—	234	—
Brazil	—	—	—	—	(3) 2,822	(3) 2,435	—	—	5,481	—
Peru	—	—	—	—	(2) 1,140	(2) 925	—	—	1,489	—
Burma	53	21	0	0	321	351	0	0	436	0
China	16	323	394	15	1,261	815	1,492	82	1,955	181
India: by sea	1,360	1,005	211	372	8,798	5,826	1,223	2,358	8,251	3,131
Netherlands Indies:										
Java and Madura	—	—	—	—	(1) 14	(1) 8	—	—	11	—
Outer provinces	—	—	—	—	(1) 15	(1) 15	—	—	49	—
Iraq	—	—	—	—	(2) 35	(2) 64	(2) 1	(2) 2	85	5
Iran	—	—	—	—	(1) 100	(1) 297	(1) 0	(1) 0	415	0
Syria and Lebanon	3	2	0	0	50	41	1	0	53	0
Turkey	18	34	—	—	304	379	—	—	479	—
Egypt	—	—	—	—	(1) 5,714	(1) 6,243	—	—	8,567	—
French Morocco	—	—	—	—	(2) 0	(2) 1	(2) 0	(2) 1	1	1
<i>Importing Countries:</i>										
Germany (7) (8)	0	0	513	438	1	0	4,758	5,323	0	6,914
Austria (7)	—	—	—	55	(2) 0	0	(2) 482	623	0	832
Belgo-Luxemb. P. U.	91	56	136	227	650	599	1,773	2,084	841	2,714
Bohemia-Moravia (Protectorate) (9)	(10) 1	3	(10) 99	151	9	36	953	1,563	499	15,294
Bulgaria	0	0	31	31	0	0	218	209	0	258
Denmark	—	—	19	15	—	—	149	147	—	190
Spain	—	—	—	—	—	—	—	—	—	—
Estonia	0	0	10	11	0	0	112	106	0	133
Finland	0	0	26	11	0	0	283	258	1	324
France	62	31	394	446	349	295	4,615	5,518	384	6,773
Greece	—	—	—	—	(1) 0	(1) 0	(1) 27	47	0	66
Hungary	0	0	49	34	0	0	465	396	0	500
Italy	0	0	201	312	0	0	2,184	2,890	0	3,710
Latvia	0	0	4	10	0	0	77	81	0	106
Lithuania	0	0	0	5	0	0	34	47	0	55
Norway	0	0	8	6	0	0	78	61	0	67
Netherlands	1	0	109	60	10	9	933	948	12	1,198
Poland - Danzig	0	0	188	150	1	1	1,329	1,360	2	1,772
Portugal	—	—	1	90	—	—	345	522	—	645
Romania	—	—	—	—	(2) 0	(2) 0	(2) 284	217	0	440
United Kingdom	26	32	909	1,097	376	363	7,994	12,835	—	711
Sweden	—	—	124	36	—	—	748	549	3	718
Switzerland	0	1	85	43	0	3	493	588	45	1,982
Yugoslavia	0	0	26	41	0	0	418	393	1	482
U. S. S. R.	—	—	—	—	(6) 0	(6) 211	(6) 2	52	420	501
Canada	—	—	45	68	—	—	889	1,108	—	1,400
Colombia	—	—	—	—	—	—	(5) 29	26	—	91
Ceylon	0	0	0	2	0	0	12	13	0	20
Chosen	—	—	—	—	(1) 0	(1) 0	(1) 250	176	0	414
Taiwan	—	—	—	—	—	—	(3) 0	2	—	3
Indochina	—	—	—	—	(1) 4	(1) 7	(1) 461	123	8	219
Japan	—	—	—	—	(4) 1	(4) 90	(4) 5,573	3,195	106	10,028
Manchukuo	—	—	—	—	(3) 0	(3) 0	(3) 598	347	0	788
Palestine	—	—	—	—	(1) 0	(1) 0	(1) 9	11	0	15
Algeria	0	1	0	0	1	2	4	4	5	6
Union of South Afr.	—	—	—	—	(3) 3	(2) 4	(2) 8	20	5	28
Australia	0	0	5	10	0	0	99	123	0	151
Totals	2,587	3,531	3,650	3,832	38,068	46,065	39,944	44,902	59,828	63,661

(1) Up to March 31. — (2) Up to February 28. — (3) Up to January 31. — (4) Up to December 31. — (5) Up to November 30. — (6) Up to September 30. — (7) From January 1, 1938 to March 31, 1939 excluding trade between Germany and Austria. — (8) As from April 1, 1939 the data refer to the territory of the former Reich, Ostmark, the Sudetenland and Memel; they do not include trade between these territories and the Protectorate of Bohemia-Moravia. — (9) Up to March 15, 1939; the data refer to Czecho-Slovakia. — (10) The data cover the period from March 16, to April 30, 1939.

COUNTRIES	APRIL				EIGHT MONTHS (September 1-April 30)				TWELVE MONTHS (Sept. 1-Aug. 31)	
	EXPORTS		IMPORTS		EXPORTS		IMPORTS		EXPORTS	IMPORTS
	1939	1938	1939	1938	1938-39	1937-38	1938-39	1937-38	1937-38	1937-38
Wool. — Thousand lb.										
<i>Exporting Countries:</i>										
Ireland	906	357	44	60	10,214	4,531	547	534	9,268	734
Argentina	(a) 27,285	36,793	—	—	223,316	136,636	—	—	230,643	—
Chile	(b) 5,207	3,971	—	—	38,248	25,777	—	—	41,928	—
Peru	—	—	—	—	(4) 5,556	(4) 60	(4) 302	(4) 170	21,089	1,098
Uruguay	(a) 4,303	11,089	—	—	(2) 5,159	(2) 5,240	—	—	11,830	—
Burma	(b) 1,986	1,623	—	—	59,624	61,895	—	—	83,095	—
China	37	0	0	2	13,664	6,407	—	—	10,121	—
India: by sea	143	620	—	—	207	88	0	2	148	2
„ : by land	5,467	4,632	545	798	5,776	5,915	—	—	8,735	—
Iraq	—	—	—	—	52,080	25,814	4,835	5,842	40,528	8,049
Iran	—	—	—	—	(3) 6,956	(3) 3,653	(3) 15	(3) 15	0	10,856
Manchukuo	—	—	—	—	(2) 9,749	(2) 3,825	(2) 15	(2) 15	6,041	637
Palestine	—	—	—	—	(1) 2,498	(1) 4,180	—	—	6,074	—
Syria and Lebanon	—	—	—	—	(3) 1,645	(3) 4,475	(3) 0	(3) 423	6,171	697
Turkey	474	212	2	0	(1) 79	(1) 97	(1) 15	(1) 42	203	97
Algeria	847	236	—	—	5,637	4,004	218	159	4,941	192
Egypt	1,554	761	344	53	12,765	9,965	—	—	12,097	—
French Morocco	—	—	—	—	11,709	10,130	1,612	697	21,826	1,321
Tunisia	146	55	7	49	(1) 2,934	(1) 1,347	(1) 229	(1) 55	2,491	104
Un. of S. Africa	(a) —	—	—	—	(2) 4,822	(2) 4,052	(2) 9	(2) 13	13,761	60
Australia	(b) 53,828	62,737	1,856	2,114	1,501	1,689	73	703	2,288	1,016
New Zealand	(a) 3,878	3,455	181	159	(1) 146,165	(1) 154,322	(2) 933	(2) 1,603	210,461	2,066
	(b) 45,790	22,594	4	31	(1) 4,449	(1) 3,935	(2) 556	—	6,989	—
	(a) 6,228	3,920	0	0	660,955	575,810	12,035	9,385	732,887	13,481
	(b) —	—	—	—	45,896	35,274	373	231	54,562	403
	—	—	—	—	199,217	161,421	55	99	212,471	99
	—	—	—	—	31,321	20,770	4	2	41,731	2
<i>Importing Countries:</i>										
Germany (5) (7)	(a) 0	(a) 0	(a) 37,234	(a) 32,214	20	4	172,543	163,059	7	279,904
Austria (6)	(b) 0	(b) 0	(b) 2,346	(b) 2,136	7	95	20,106	20,439	115	30,713
Belgo-Luxemb. (a)	6,345	4,513	25,241	27,115	(2) 31	64	(2) 10,743	10,256	64	19,191
Econ. Un. (b)	2,736	2,661	454	642	35,810	32,503	157,250	125,271	49,520	204,228
Bohemia-Moravia	—	—	—	—	20,424	16,477	3,640	3,095	25,792	5,249
(Protectorate) (8)	(g) 18	44	(g) 551	3,481	392	434	11,358	16,316	626	30,675
Bulgaria	0	0	201	306	0	0	1,107	955	0	1,409
Denmark	57	9	1,091	800	571	331	5,767	3,605	496	6,411
Spain	—	—	—	—	—	—	—	—	—	—
Estonia	0	11	71	42	0	0	569	373	0	604
Finland	0	0	902	567	26	117	4,533	3,896	143	5,578
France	4,901	3,382	37,194	35,340	40,082	31,932	303,260	216,484	48,054	367,148
Greece	—	—	—	—	(1) 802	(1) 1,107	(1) 3,596	(1) 3,195	1,733	5,706
Hungary	46	0	207	174	335	214	2,187	717	408	1,237
Italy	(a) 271	0	4,112	5,886	388	93	46,643	45,773	110	69,810
Latvia	(b) 15	333	320	373	886	611	2,778	2,703	1,021	4,195
Lithuania	0	0	137	190	0	0	1,310	1,435	0	2,028
Norway	0	0	33	44	0	0	657	591	0	888
Netherlands	128	130	227	108	1,193	1,133	1,834	1,334	1,609	1,806
Poland	1,276	84	1,175	820	2,200	1,543	6,669	4,134	2,174	7,253
Portugal	49	55	1,111	1,047	216	368	7,405	4,694	516	7,606
Romania	0	0	6,590	4,339	4	49	37,393	25,380	53	44,095
United Kingdom	7	7	112	578	833	637	2,094	2,432	957	3,318
Sweden	32,190	34,178	112,227	103,408	(a) 18	(a) 79	(a) 578	(a) 1,215	273	1,898
Switzerland	—	—	4,497	1,781	195,202	165,334	672,882	541,867	278,376	843,721
Yugoslavia	44	9	2,200	1,806	—	—	22,875	11,543	—	17,163
U. S. S. R.	22	75	847	719	249	99	11,623	8,117	249	13,373
Canada	(a) —	—	—	—	269	1,087	8,417	3,298	1,380	7,639
United States	(b) —	—	—	—	(5) 0	(5) 0	(5) 3,245	(5) 3,880	0	53,101
Japan	4	192	944	1,519	(5) 0	(5) 0	(5) 763	(5) 1,023	0	13,907
	0	373	16,826	3,660	12,130	2,721	10,646	4,431	15,161	—
	—	—	—	—	172	496	143,601	63,041	1,237	89,748
	—	—	—	—	(4) 0	(4) 0	(4) 29,716	(4) 15,783	4	102,703
Totals	206,188	199,511	259,833	235,093	1,857,375	1,525,187	1,738,039	1,340,177	2,211,727	2,298,380

(a) Unwashed wool. — (b) Washed wool.

(1) Up to March 31. — (2) Up to February 28. — (3) Up to January 31. — (4) Up to December 31. — (5) Up to September 30. — (6) From January 1, 1938 to March 31, 1939, excluding trade between Germany and Austria. — (7) As from April 1, 1939 the data refer to the territory of the former Reich, Ostmark, the Sudetenland and Memel; they do not include trade between these territories and the Protectorate of Bohemia-Moravia. — (8) Up to March 15, 1939, the data refer to Czechoslovakia. — (9) The data cover the period from March 16, to April 30, 1939.

COUNTRIES	APRIL				FOUR MONTHS (January 1-April 30)				TWELVE MONTHS (January 1-Dec. 31)	
	EXPORTS		IMPORTS		EXPORTS		IMPORTS		EXPORTS	IMPORTS
	1939	1938	1939	1938	1939	1938	1939	1938	1938	1938
Butter. — Thousand lb.										
<i>Exporting Countries:</i>										
Bulgaria.	0	4	0	0	4	4	0	0	53	0
Denmark.	28,193	31,522	0	0	98,481	107,998	0	0	348,433	0
Estonia.	2,218	2,037	0	0	7,665	7,017	0	0	32,479	0
Finland.	3,743	3,680	0	0	11,812	12,037	0	0	37,763	0
France.	454	611	218	181	1,609	1,702	814	419	6,442	1,340
Hungary.	57	397	0	0	847	3,027	0	0	7,760	0
Ireland.	231	567	11	549	789	2,169	212	642	42,278	644
Latvia.	4,330	4,017	0	0	12,939	12,295	0	0	51,460	0
Lithuania.	2,687	1,653	0	0	6,193	5,893	0	0	38,387	0
Norway.	0	240	0	0	117	1,043	0	0	1,797	0
Netherlands.	11,755	9,883	0	0	34,474	28,438	0	4	112,141	7
Poland-Danzig.	1,841	2,445	0	0	7,169	9,830	0	0	29,086	0
Romania.	3,832	4,738	0	0	(2) 51	(2) 55	(2) 0	(2) 0	256	0
Sweden.	0	4	0	0	14,806	20,082	2	0	62,953	2
Yugoslavia.	0	0	0	0	2	18	—	—	196	—
U. S. S. R.	—	—	—	—	—	—	—	—	(4) 452	(4) 679
Canada.	633	22	0	340	6,594	161	2	5,225	3,821	5,232
Argentina.	710	701	—	—	6,819	2,143	—	—	16,160	—
Chile.	—	—	—	—	—	—	—	—	7	0
Syria and Lebanon.	49	187	7	2	368	276	33	26	1,089	64
Turkey.	0	0	—	—	0	2	—	—	4	—
Union of South Afr.	—	—	—	—	(2) 2,013	(2) 55	(2) 0	(2) 0	3,536	2
Australia.	15,353	15,141	0	0	67,385	91,702	2	0	229,407	0
New Zealand.	7,654	17,084	0	7	98,102	126,627	0	9	293,233	7
<i>Importing Countries:</i>										
Germany (5) (6)	0	0	15,280	13,109	0	0	59,421	63,286	0	204,113
Austria (5)	—	—	—	—	(2) 0	2,606	(2) 84	2	2,606	165
Belgo-Luxemb. E. U.	2	4	15	4	7	18	2,077	1,658	51	2,540
Bohemia-Moravia (Protectorate) (7)	(8) 0	225	(8) 492	0	68	1,687	809	0	1,773	2,266
Spain.	—	—	—	—	—	—	—	—	—	—
Greece.	—	—	—	—	—	—	(1) 284	(1) 198	—	1,151
Italy.	143	146	110	44	481	763	273	143	1,883	463
Portugal.	4	7	0	0	31	33	0	0	115	0
United Kingdom.	558	935	78,630	97,619	5,075	4,105	332,145	364,223	10,174	1,065,630
Switzerland.	2	0	13	13	7	2	42	187	11	340
United States.	207	77	44	152	617	284	328	359	1,960	1,144
Peru.	—	—	—	—	(2) 0	(2) 123	(2) 53	(2) 71	194	355
Burma.	—	—	55	55	—	—	236	231	—	668
Ceylon.	—	—	62	110	—	—	287	276	—	858
China.	—	—	108	53	—	—	218	220	—	531
India: by sea.	57	498	60	88	1,596	2,284	417	368	5,964	968
" : by land.	—	—	—	—	—	—	(3) 902	(3) 1,111	—	5,908
Netherlands Indies: Java and Madura.	—	—	—	—	—	—	(1) 1,519	(1) 1,953	—	7,335
Outer Provinces.	—	—	—	—	—	—	(1) 514	(1) 659	—	2,568
Indochina.	—	—	—	—	(1) 0	(1) 0	(1) 825	(1) 141	2	763
Iraq.	—	—	—	—	(2) 2	(2) 0	(2) 4	(2) 4	0	31
Iran.	—	—	—	—	(1) 2	(1) 0	(1) 84	(1) 0	20	0
Japan.	—	—	—	—	—	—	—	—	494	0
British Malaya.	—	—	—	—	(1) 161	(1) 134	(1) 1,257	(1) 1,279	626	4,691
Palestine.	—	—	—	—	—	—	(1) 1,437	(1) 1,047	—	4,493
Algeria.	0	0	357	487	11	2	1,274	1,387	11	4,332
Egypt.	—	—	—	—	(1) 123	(1) 73	(1) 207	(1) 284	335	1,325
French Morocco.	—	—	—	—	—	—	(2) 472	(2) 500	—	1,953
Tunisia.	2	0	119	40	2	0	500	507	2	1,475
Totals . . .	84,715	96,825	95,581	112,853	386,422	444,688	406,734	446,419	1,345,414	1,324,043

(1) Up to March 31. — (2) Up to February 28. — (3) Up to January 31. — (4) Up to October 31. — (5) From January 1, 1938 to March 31, 1939, excluding trade between Germany and Austria. — (6) As from April 1, 1939 the data refer to the territory of the former Reich, Ostmark, the Sudetenland and Memel; they do not include trade between these territories and the Protectorate of Bohemia-Moravia. — (7) Up to March 15, 1939, the data refer to Czechoslovakia. — (8) The data cover the period from March 16, to April 30, 1939.

COUNTRIES	APRIL				FOUR MONTHS (January 1-April 30)				TWELVE MONTHS (Jan. 1-Dec. 31)	
	EXPORTS		IMPORTS		EXPORTS		IMPORTS		EXPORTS	IMPORTS
	1939	1938	1939	1938	1939	1938	1939	1938	1938	1938
<i>Exporting Countries:</i>										
Cheese. — Thousand lb.										
Bohemia-Moravia (Protectorate) (4)	(5) 18	119	(5) 384	262	132	1,063	1,127	860	503	317
Bulgaria	258	287	0	0	860	1,173	0	0	3,660	0
Denmark	1,907	1,761	2	2	6,720	6,581	9	7	20,408	29
Estonia	57	40	0	0	240	163	0	0	507	2
Finland	1,323	1,149	2	2	4,497	4,303	11	11	14,930	35
Hungary	51	282	0	0	172	359	0	0	787	2
Ireland	79	46	4	4	351	505	13	13	2,262	40
Italy	5,161	5,113	791	750	17,205	16,204	2,780	3,104	53,286	10,221
Latvia	0	2	0	0	71	77	0	0	309	0
Lithuania	0	187	0	0	238	527	0	0	2,004	4
Norway	346	262	35	35	1,563	1,186	214	159	3,642	518
Netherlands	9,295	9,952	53	55	37,726	41,363	214	256	128,953	692
Poland-Danzig	0	7	51	24	117	13	139	86	40	73
Romania	...	...	...	...	(2) 18	(2) 2	(2) 11	(2) 18	49,348	3,404
Switzerland	4,888	3,737	320	291	17,300	14,420	1,420	1,168	1,753	3,071
Yugoslavia	128	60	4	2	320	388	13	15	3,384	46
Canada	377	1,620	99	174	3,490	3,254	344	417	80,989	1,387
Argentina	450	322	...	...	1,497	1,078	(1) 11	(1) 18	4,374	108
Turkey	0	0	...	...	0	0	...	...	46	...
Union of South Afr.	...	...	...	...	(2) 1,069	(2) 4	(2) 42	37	2,716	362
Australia	1,786	1,294	9	11	12,136	11,519	53	42	35,181	143
New Zealand	11,969	17,236	0	2	72,512	73,692	2	2	180,381	9
<i>Importing Countries:</i>										
Germany (6) (7)	11	13	4,791	4,938	291	71	21,112	23,790	225	72,091
Austria (6)	...	249	...	134	(2) 33	2,125	(2) 205	549	3,536	1,726
Belgo-Luxemb. E. U.	20	35	4,094	4,215	73	104	16,491	15,798	280	53,350
Spain	...	...	...	...	...	...	...	...	...	...
France	2,747	2,906	2,498	2,176	10,759	9,332	10,287	10,329	26,508	31,304
Greece	...	...	...	...	(1) 9	(1) 37	(1) 1,113	(1) 249	172	1,534
Portugal	20	13	11	26	82	55	35	60	154	245
United Kingdom	315	370	24,718	25,098	1,279	1,470	103,159	99,217	4,859	329,202
Sweden	...	...	386	201	...	...	1,482	688	...	2,687
U. S. S. R.	...	...	...	...	...	...	...	...	(3) 55	(3) 254
United States	130	148	3,926	5,265	470	472	17,148	16,495	1,482	54,432
Chile	...	...	...	...	...	...	...	...	42	79
Peru	...	...	...	...	...	...	...	...	...	816
Burma	...	...	9	7	...	...	(2) 62	(2) 106	...	90
Ceylon	...	...	22	29	...	...	64	64	...	243
India: by sea	0	0	71	99	4	0	331	362	2	1,164
Netherlands Indies:	...	...	...	...	...	...	...	...	...	...
Java and Madura	...	...	...	...	(1) 0	(1) 0	(1) 357	(1) 397	...	2,035
Indochina	...	...	...	...	(1) 2	(1) 0	(1) 161	(1) 148	2	578
Iraq	...	...	...	...	(1) 0	(1) 0	(1) 22	(1) 9	11	62
Iran	...	...	...	...	(1) 0	(1) 0	(1) 0	(1) 0	0	11
Japan	...	...	...	...	...	...	...	...	...	...
British Malaya	...	...	...	...	(1) 7	(1) 7	(1) 84	(1) 108	33	392
Palestine	...	...	...	...	(1) 11	(1) 9	(1) 595	(1) 485	35	2,112
Syria and Lebanon	11	64	75	66	143	137	214	247	783	591
Algeria	0	0	1,213	1,400	2	9	4,434	4,171	35	12,432
Egypt	...	...	...	...	(1) 26	(1) 15	(1) 1,270	(1) 1,709	90	7,699
French Morocco	...	...	...	...	...	...	(2) 505	(2) 642	...	3,444
Tunisia	31	4	218	227	55	22	922	851	62	2,683
Totals	41,378	47,278	43,786	45,495	191,480	191,739	186,495	182,722	627,899	601,719

(1) Up to March 31. — (2) Up to February 28. — (3) Up to October 31. — (4) Up to March 15, 1939, the data refer to Czechoslovakia. — (5) The data cover the period from March 16, to April 30, 1939. — (6) From January 1, 1938 to March 31, 1939, excluding trade between Germany and Austria. — (7) As from April 1, 1939 the data refer to the territory of the former Reich, Ostmark, the Sudetenland and Memel; they do not include trade between these territories and the Protectorate of Bohemia-Moravia.

COUNTRIES	APRIL				SEVEN MONTHS (October 1-April 30)				TWELVE MONTHS (Oct. 1-Sept. 30)	
	EXPORTS		IMPORTS		EXPORTS		IMPORTS		EXPORTS	IMPORTS
	1939	1938	1939	1938	1938-39	1937-38	1938-39	1937-38	1937-38	1937-38
<i>Exporting Countries:</i>										
Cacao. — Thousand lb.										
Grenada . . . . .	...	...	—	—	(1) 3,508	(1) 4,636	—	—	9,207	—
Haiti	295	146	—	—	3,499	2,652	—	—	3,448	—
Dominican Republic .	7,291	3,594	—	—	33,521	25,538	—	—	62,265	—
Brazil . . . . .	...	...	—	—	(3) 117,564	(3) 112,643	—	—	282,120	—
Ecuador . . . . .	...	...	—	—	(3) 9,449	(3) 9,107	—	—	41,013	—
Trinidad . . . . .	...	...	—	—	(1) 9,218	(1) 20,069	—	—	42,102	—
Ceylon	595	503	—	—	4,967	6,008	—	—	8,836	—
Netherlands Indies:										
Java and Madura . .	...	...	—	—	(1) 1,773	(1) 1,821	—	—	3,415	—
Cameroon; Fr. m. t.	...	...	—	—	(1) 55,023	(1) 39,941	—	—	59,238	—
Ivory Coast	17,055	21,899	—	—	66,057	82,330	—	—	110,434	—
Gold Coast	53,762	7,754	—	—	492,316	116,585	—	—	513,000	—
Madagascar	106	0	—	—	666	406	—	—	545	—
Nigeria and Came-										
roon	21,969	19,875	—	—	202,885	162,534	—	—	211,819	—
São Thomé and Prin-										
cipe Islands	1,089	1,265	—	—	14,864	16,400	—	—	24,978	—
Togo; Fr. m. t. . . .	...	...	—	—	(1) 10,981	(1) 5,534	—	—	14,925	—
<i>Importing Countries:</i>										
Germany (6) (7) . . }	0	0	15,397	12,760	(2) 0	675	126,067	99,868	675	171,064
Austria (6) }	0	0	1,014	1,014	(2) 0	0	(2) 9,841	7,147	0	14,376
Belgo-Luxemb. E. U.	0	7	1,852	2,057	0	126	15,282	15,906	130	24,513
Bohemia-Moravia										
(Protectorate) (8) .	—	—	(9) 3,338	1,874	—	—	15,463	14,714	—	23,338
Bulgaria	—	—	218	84	—	—	1,629	994	—	1,576
Denmark	7	0	939	705	18	0	7,575	6,186	4	11,045
Spain	—	—	—	—	—	—	—	—	—	—
Estonia	—	—	55	55	—	—	620	571	—	1,041
Finland	—	—	42	46	—	—	335	236	—	364
France	0	46	8,940	7,390	300	51	62,631	54,406	51	94,113
Greece	—	—	15	75	—	—	(1) 2,235	(1) 2,030	—	3,655
Hungary	—	—	1,191	604	—	—	7,928	4,535	—	9,330
Ireland	—	—	1,828	68	—	—	5,999	1,845	—	3,847
Italy	—	—	1,065	2,024	—	—	9,945	12,245	—	20,239
Latvia	0	0	132	128	0	0	1,367	1,025	0	1,717
Lithuania	—	—	15	75	—	—	725	721	—	1,332
Norway	0	0	833	761	0	0	5,307	4,592	0	8,730
Netherlands	26	60	12,549	11,008	1,175	3,545	105,013	100,533	5,379	164,540
Poland-Danzig	—	—	1,550	1,054	—	—	11,777	10,481	—	17,719
Portugal	0	0	132	73	0	0	776	677	2	1,096
Romania	—	—	—	—	—	—	(2) 2,134	(2) 1,376	—	3,607
United Kingdom . . .	474	578	38,984	11,056	7,672	15,305	234,436	97,936	17,267	282,746
Sweden	—	—	1,105	935	—	—	10,604	8,120	—	14,070
Switzerland	0	0	2,271	1,420	44	190	13,803	9,755	262	18,503
Yugoslavia	—	—	375	121	—	—	1,962	1,609	—	2,815
U. S. S. R.	—	—	—	—	—	—	—	—	—	32,558
Canada	—	—	390	1,839	—	—	10,992	10,869	—	21,830
United States	—	—	71,798	28,978	—	—	367,854	254,075	—	466,297
Argentina	—	—	—	—	—	—	(1) 4,725	(1) 5,776	—	12,877
Chile	—	—	—	—	—	—	(4) 348	(4) 368	—	1,982
Colombia	—	—	—	—	—	—	(5) 1,157	(5) 428	—	4,535
Peru	—	—	—	—	(2) 0	(2) 0	(2) 132	(2) 417	0	930
Uruguay	—	—	130	132	—	—	661	683	—	1,548
Iran	—	—	—	—	—	—	(1) 82	(1) 18	—	31
Japan	—	—	—	—	—	—	(4) 796	(4) 1,874	—	5,108
British Malaya	—	—	—	—	(1) 64	(1) 33	(1) 53	(1) 42	62	68
Palestine	—	—	—	—	—	—	(1) 437	(1) 373	—	822
Syria and Lebanon . .	—	—	0	0	—	—	2	0	—	7
Algeria	0	0	64	66	0	0	328	214	0	470
Egypt	—	—	—	—	—	—	(1) 582	(1) 324	—	796
French Morocco	—	—	—	—	—	—	(2) 73	(2) 55	—	95
Tunisia	—	—	0	4	—	—	7	4	—	4
Union of South Africa .	—	—	—	—	—	—	(2) 1,133	(2) 1,453	—	3,968
Australia	0	0	6,413	1,036	0	0	12,873	8,091	7	17,315
New Zealand	—	—	520	1,054	—	—	2,086	3,655	—	5,512
Totals	102,669	55,727	172,126	88,421	1,035,564	626,129	1,057,775	746,227	1,411,184	1,472,129

(1) Up to March 31. — (2) Up to February 28. — (3) Up to January 31. — (4) Up to December 31. — (5) Up to November 30. — (6) From January 1, 1938 to March 31, 1939, excluding trade between Germany and Austria. — (7) As from April 1, 1939 the data refer to the territory of the former Reich, Ostmark, the Sudetenland and Memel; they do not include trade between these territories and the Protectorate of Bohemia-Moravia. — (8) Up to March 13, 1939 the data refer to Czechoslovakia. — (9) The data cover the period from March 16, to April 30, 1939.

COUNTRIES	APRIL				TEN MONTHS (July 1-April 30)				TWELVE MONTHS (July 1-June 30)	
	EXPORTS		IMPORTS		EXPORTS		IMPORTS		EXPORTS	IMPORTS
	1939	1938	1939	1938	1938-39	1937-38	1938-39	1937-38	1937-38	1937-38
Tea. — Thousand lb.										
<i>Exporting Countries:</i>										
Ceylon	19,244	24,374	0	0	178,855	179,422	0	0	231,823	0
China	1,488	2,337	930	86	78,342	60,865	4,142	207	72,746	485
Chosen . . . . .	...	...	...	...	(r) 152	(r) 82	(r) 0	(r) 2	95	2
Taiwan . . . . .	...	...	...	...	(3) 17,628	(3) 15,831	(3) 0	(3) 53	21,239	53
India: by sea	5,366	6,695	82	51	315,582	314,352	2,851	3,256	346,147	3,316
" by land . . . . .	...	...	...	...	(3) 7,864	(3) 8,799	...	...	13,719	...
Netherlands Indies:	...	...	...	...	(r) 93,342	(r) 90,291	(r) 419	(r) 373	123,424	463
Java and Madura . . . . .	...	...	...	...	(r) 23,640	(r) 22,408	...	...	31,445	...
Outer Provinces . . . . .	...	...	...	...	(r) 3,651	(r) 3,547	(r) 844	(r) 935	4,350	1,382
Indochina . . . . .	...	...	...	...	(4) 23,129	(4) 31,048	(4) 86	(4) 110	39,432	112
Japan . . . . .	...	...	...	...	...	...	...	...	...	...
<i>Importing Countries:</i>										
Germany (6) (7)	11	13	1,446	862	(2) 123	265	12,260	9,288	304	10,992
Austria (6) . . . . .	...	0	18	18	...	0	(2) 935	668	0	730
Belgo-Luxemb. E.U.	0	0	53	60	2	7	531	525	7	635
Bohemia-Moravia . . . . .	...	...	...	...	...	...	...	...	...	...
(Protectorate) (8) . . . . .	...	(9) 205	71	...	...	...	1,129	1,074	...	1,204
Bulgaria . . . . .	...	...	2	0	...	...	53	79	...	82
Denmark	0	0	130	79	33	26	1,206	955	37	1,263
Spain . . . . .	...	...	...	...	...	...	...	...	...	...
Estonia . . . . .	...	...	7	7	...	...	84	82	...	99
Finland . . . . .	...	...	22	22	...	...	267	238	...	273
France	2	2	229	218	11	20	2,385	2,425	20	2,978
Greece . . . . .	...	...	...	...	...	...	(x) 344	(x) 238	...	313
Hungary . . . . .	...	...	66	44	...	...	573	423	...	487
Ireland	2	24	2,886	2,284	33	891	21,837	22,022	897	24,784
Italy . . . . .	...	...	22	31	...	...	183	245	...	311
Latvia	0	0	4	7	0	0	55	60	...	73
Lithuania . . . . .	...	...	4	4	...	...	71	68	...	90
Norway	0	0	44	31	0	0	328	324	...	377
Netherlands	15	13	3,047	2,152	168	183	25,219	22,002	207	27,157
Poland-Danzig	0	0	337	311	0	2	3,479	3,177	2	3,810
Portugal . . . . .	...	...	33	40	...	...	267	328	0	377
Romania . . . . .	...	...	...	...	...	...	(2) 549	(2) 432	...	518
United Kingdom	7,659	5,972	21,094	28,808	56,414	58,204	447,507	458,883	69,977	526,336
Sweden . . . . .	...	...	101	88	...	...	968	811	...	1,003
Switzerland	0	2	139	123	7	20	1,587	1,314	22	1,581
Yugoslavia . . . . .	...	...	31	20	...	...	441	384	...	443
U. S. S. R. . . . .	...	...	...	...	(5) 289	(5) 6,680	(5) 9,405	(5) 10,203	8,505	28,801
Canada . . . . .	...	...	7,899	2,213	...	...	36,936	31,162	...	38,960
United States . . . . .	...	...	6,865	6,830	...	...	74,089	75,136	...	85,839
Argentina . . . . .	...	...	...	...	...	...	(x) 3,821	(x) 3,320	...	4,142
Chile . . . . .	...	...	...	...	...	...	(4) 3,170	(4) 3,245	...	4,766
Peru . . . . .	...	...	...	...	...	...	(2) 772	(2) 1,135	...	1,501
Uruguay . . . . .	...	...	26	29	...	...	397	324	...	406
Burma	24	9	154	564	157	176	1,609	7,568	1,574	7,599
Iraq . . . . .	...	...	...	...	(2) 55	(2) 141	(2) 4,744	(2) 4,782	185	7,099
Iran . . . . .	...	...	...	...	...	...	(x) 13,373	(x) 12,117	...	17,749
British Malaya . . . . .	...	...	...	...	(x) 974	(x) 937	(x) 3,816	(x) 4,361	1,332	5,670
Manchukuo . . . . .	...	...	...	...	...	...	(3) 11,881	(3) 6,942	...	12,174
Palestine . . . . .	...	...	...	...	(x) 0	(x) 0	(x) 467	(x) 527	2	686
Syria and Lebanon	0	0	26	18	0	0	421	311	0	340
Turkey . . . . .	...	...	187	137	...	...	1,801	1,881	...	2,161
Algeria	0	0	205	300	2	2	2,615	2,851	4	3,827
Egypt . . . . .	...	...	...	...	(2) 611	(2) 414	(x) 12,480	(x) 12,511	...	16,590
French Morocco . . . . .	...	...	...	...	...	...	(2) 13,221	(2) 13,510	833	19,178
Tunisia . . . . .	...	...	877	362	...	...	4,343	3,774	...	4,594
Union of South Afr. . . . .	...	...	...	...	(2) 392	(2) 278	(2) 11,435	(2) 10,207	472	15,516
Australia	33	31	4,004	3,360	406	384	40,334	36,870	454	45,179
New Zealand	4	9	794	1,631	128	117	9,647	10,459	139	12,214
Totals	33,848	39,481	51,951	50,861	801,990	795,390	791,379	784,177	969,393	946,720

(1) Up to March 31. — (2) Up to February 28. — (3) Up to January 31. — (4) Up to December 31. — (5) Up to September 30. — (6) From January 1, 1938 to March 31, 1939, excluding trade between Germany and Austria. — (7) As from April 1, 1939 the data refer to the territory of the former Reich, Ostmark, the Sudetenland and Meme; they do not include trade between these territories and the Protectorate of Bohemia-Moravia. — (8) Up to March 15, 1939 the data refer to Czechoslovakia. — (9) The data cover the period from March 16, to April 30, 1939.

COUNTRIES	APRIL				TEN MONTHS (July 1-April 30)				TWELVE MONTHS (July 1-June 30)	
	EXPORTS		IMPORTS		EXPORTS		IMPORTS		EXPORTS	IMPORTS
	1939	1938	1939	1938	1938-39	1937-38	1938-39	1937-38	1937-38	1937-38
Coffee. — Thousand lb.										
<i>Exporting Countries:</i>										
Costa-Rica	...	...	—	—	(1) 38,480	(1) 42,488	—	—	56,006	—
Gundaloupe	...	...	—	—	(2) 201	(2) 437	—	—	816	—
Jamaica	1,598	1,235	—	—	7,646	6,815	—	—	8,296	—
Haiti	5,761	4,822	—	—	51,414	42,364	—	—	50,341	—
Mexico	...	...	—	—	(4) 22,728	(4) 17,079	—	—	71,792	—
Nicaragua	...	...	—	—	(5) 3,878	(6) 1,634	—	—	30,965	—
Dominican Republic	...	...	—	—	(3) 11,164	(3) 10,309	—	—	19,213	—
Salvador	...	...	—	—	(1) 91,360	(1) 82,934	—	—	116,843	—
Brazil	166,428	195,853	—	—	1,758,263	1,541,508	—	—	1,933,410	—
Colombia	37,540	34,619	—	—	436,583	434,616	—	—	531,757	—
British Guiana	...	...	—	—	(4) 26	(4) 148	—	—	227	—
Dutch Guiana	...	...	—	—	(2) 4,206	(2) 3,955	—	—	5,655	—
Peru	...	...	—	—	(2) 4,932	(2) 4,270	(2) 2	(2) 7	5,481	9
Aden: by sea	...	...	...	...	(1) 8,342	(1) 4,760	—	—	7,200	—
India: by sea	2,485	2,844	4	0	18,201	14,268	7	7	16,405	7
Netherlands Indies:										
Java and Madura	...	...	—	—	(1) 42,488	(1) 64,988	—	—	71,523	—
Outer Provinces	...	...	—	—	(1) 84,175	(1) 100,992	—	—	120,141	—
Indochina	55	163	...	...	1,091	392	(1) 84	(1) 112	811	141
Angola	...	...	—	—	(5) 21,707	(5) 19,057	—	—	30,830	—
Belgian Congo	...	...	—	—	(1) 33,488	(1) 2,878	—	—	38,766	—
Ivory Coast	...	...	—	—	(4) 12,165	(4) 10,318	—	—	29,798	—
Kenya	...	...	—	—	(4) 14,222	(4) 12,359	—	—	36,156	—
Uganda	...	...	—	—	(4) 18,153	(4) 14,244	—	—	28,149	—
Madagascar	3,823	7,619	—	—	73,696	63,566	—	—	70,828	—
Tanganyika	...	...	—	—	(4) 19,659	(4) 21,363	—	—	32,342	—
New Caledonia	...	...	—	—	(4) 1,874	(4) 1,398	—	—	4,460	—
New Hebrides	...	...	—	—	(4) 617	(4) 710	—	—	1,235	—
<i>Importing Countries:</i>										
Germany (8) (9)	0	0	30,144	34,139	0	0	344,182	326,585	0	400,425
Austria (8)	...	...	...	589	(2) 0	0	(2) 12,192	9,165	0	10,986
Belgo-Luxemb. E. U.	35	194	12,159	9,784	3,854	4,070	97,026	98,770	4,526	117,632
Bohemia-Moravia (Protectorate) (10)	—	—	(11) 4,594	2,425	—	—	20,942	20,507	—	24,974
Bulgaria	—	—	110	84	—	—	1,078	1,038	—	1,263
Denmark	33	0	4,043	5,090	551	472	75,967	54,820	558	62,032
Estonia	—	—	24	29	—	—	238	247	—	280
Finland	—	—	4,290	4,345	—	—	45,468	41,901	—	51,050
France	0	2	31,345	29,304	57	64	319,943	338,682	66	417,621
Greece	—	—	...	...	—	—	(1) 9,919	(1) 11,422	—	16,343
Hungary	—	—	345	373	—	—	4,136	3,631	—	4,334
Ireland	0	0	84	37	11	2	465	511	2	617
Italy	0	0	7,249	8,393	7	4	66,496	65,325	11	77,599
Latvia	0	0	24	115	0	0	357	408	0	456
Lithuania	—	—	4	26	—	—	293	291	—	375
Norway	2	22	3,206	3,739	90	190	32,474	29,910	205	38,239
Netherlands	1,259	981	11,308	4,641	12,785	6,023	99,581	82,627	8,874	101,631
Poland-Danzig	0	0	1,437	1,226	2	11	12,128	10,148	13	12,502
Portugal	137	304	1,246	1,973	1,446	1,909	11,129	11,685	2,310	14,288
Romania	—	—	...	...	—	—	(2) 5,128	(2) 4,176	—	6,475
United Kingdom	794	1,162	6,307	9,070	9,755	6,746	45,184	45,951	8,971	50,795
Sweden	—	—	9,559	8,918	—	—	96,922	85,835	—	105,716
Switzerland	2	0	3,034	3,351	2	2	30,305	23,563	4	31,370
Yugoslavia	—	—	794	1,358	—	—	13,387	11,962	—	14,806
U. S. S. R.	—	—	...	...	—	—	(7) 893	(7) 187	—	1,398
Canada	11	13	2,469	2,815	280	293	33,268	32,891	401	41,950
United States	767	937	134,242	159,174	8,128	6,144	1,637,293	1,415,236	7,421	1,734,036
Argentina	—	—	...	...	—	—	(1) 39,231	(1) 42,721	—	58,268
Chile	—	—	...	...	—	—	(4) 3,521	(4) 4,738	—	8,799
Uruguay	—	—	355	529	—	—	4,414	4,837	—	5,754
Ceylon	0	0	183	243	0	2	2,639	2,956	2	3,283
Burma	82	0	24	20	(2) 170	18	256	240	29	293
Iraq	—	—	...	...	(2) 0	(2) 4	(2) 1,191	(2) 1,252	0	2,273
Iran	—	—	...	...	(1) 776	(1) 313	(1) 776	(1) 313	—	633
Japan	—	—	...	...	(4) 4,458	(4) 12,009	(4) 4,458	(4) 12,009	—	17,403
British Malaya	—	—	...	...	(1) 5,479	(1) 4,123	(1) 15,221	(1) 18,160	5,505	23,140
Palestine	—	—	...	...	(1) 0	(1) 0	(1) 2,130	(1) 3,880	0	4,830
Syria and Lebanon	0	0	379	355	0	0	2,584	2,610	0	3,311
Turkey	—	—	1,294	1,168	—	—	10,051	9,310	—	11,477
Algeria	0	2	2,729	2,963	4	7	30,845	28,043	7	35,120
Egypt	—	—	...	...	—	—	(1) 8,600	(1) 14,877	—	21,511
French Morocco	—	—	...	...	—	—	(2) 3,885	(2) 3,840	—	5,937
Tunisia	0	0	595	419	7	2	3,137	2,926	4	3,415
Union of South Afr.	—	—	...	...	(2) 13	(2) 13	(2) 23,332	(2) 21,588	18	34,425
Australia	4	13	531	606	84	40	3,217	3,221	46	4,445
New Zealand	0	0	51	110	0	2	463	1,691	2	1,744
Totals	220,816	250,785	274,362	297,467	2,823,484	2,575,009	3,176,438	2,906,812	3,358,361	3,585,405

(1) Up to March 31. — (2) Up to February 28. — (3) Up to January 31. — (4) Up to December 31. — (5) Up to November 30. — (6) Up to October 31. — (7) Up to September 30. — (8) Up to August 31. — (9) Up to July 31. — (10) Up to June 30. — (11) Up to May 31.

STOCKS (*)

Commercial cereals in store in Canada and the United States.

PRODUCTS AND LOCATION	Friday or Saturday nearest 1st of month (1)				
	June 1939	May 1939	April 1939	June 1938	June 1937
	thousand centals				
WHEAT:					
Canadian in Canada	67,792	80,451	83,439	17,353	29,315
U. S. in Canada	581	12	65	634	0
U. S. in the United States	38,507	44,911	49,613	18,797	8,829
Canadian in the United States	1,382	0	1,064	409	3,891
TOTAL	108,262	125,374	134,181	37,193	42,035
RYE:					
Canadian in Canada	1,373	1,280	1,216	631	354
U. S. in Canada	13	13	13	62	53
U. S. in the United States	3,815	4,006	4,273	987	1,076
Canadian in the United States	67	0	24	0	0
TOTAL	5,268	5,299	5,526	1,680	1,483
BARLEY:					
Canadian in Canada	3,029	3,350	3,252	2,890	2,396
U. S. in Canada	21	0	0	106	0
U. S. in the United States	2,758	4,260	4,887	2,405	2,656
Canadian in the United States	71	0	0	0	533
TOTAL	5,879	7,610	8,139	5,401	5,585
OATS:					
Canadian in Canada	2,778	3,052	3,260	1,462	1,547
U. S. in Canada	45	4	45	309	0
U. S. in the United States	2,171	3,300	4,039	2,875	1,596
Canadian in the United States	0	0	0	0	0
TOTAL	4,994	6,356	7,344	4,646	3,143
MAIZE:					
U. S. in Canada	1,049	1,249	1,691	4,893	1
Argentine in Canada	12	15	16	82	717
South African in Canada	247	155	195	533	263
Australian in Canada	45	70	88	0	0
U. S. in the United States	19,358	21,987	24,495	13,859	2,843
Of other origin in the United States	0	0	0	0	50
TOTAL	20,711	23,476	26,485	19,367	3,874

(1) Friday for Canada, Saturday for the United States.

Quantities of cereals at sea with first destination Europe.

PRODUCTS	Saturday nearest 1st of month				
	June 1939	May 1939	April 1939	June 1938	June 1937
	thousand centals				
Wheat	24,307	18,907	17,582	23,256	22,997
Wheat-flour	546	437	689	473	893
TOTAL (1)	25,138	19,531	18,566	23,933	24,255
Rye	350	514	293	427	1,042
Barley	1,624	1,908	3,424	2,328	1,568
Oats	512	1,315	1,210	592	909
Maize	12,701	6,773	6,542	14,280	13,445

(1) Including flour in terms of grain.

AUTHORITY: Broomhall's Corn Trade News, Liverpool.

(*) See also the table for stocks of rye and barley in the United States on p. 614.

Commercial cereals (1) and oilseeds in store in Argentina

PRODUCTS AND LOCATION	First day of month				
	June 1939	May 1939	April 1939	June 1938	June 1937
	thousand centals				
Rye . . . . .	...	1,649	1,716	203	138
Barley . . . . .	...	2,687	3,370	1,491	644
Oats . . . . .	...	4,372	4,780	2,750	3,266
Maize in the ports	3,013	826	343	671	—
Maize in other positions	5,158	3,551	946	2,514	—
TOTAL	8,171	4,377	1,289	3,185	16,383
Canaryseed . . . . .	...	316	309	297	102
Linseed in the ports	5,443	5,649	5,645	4,665	—
Linseed other positions	3,749	4,666	5,354	4,883	—
TOTAL	9,192	10,315	10,999	9,548	12,095
Sunflowerseed . . . . .	...	409	134	—	—

(1) Figures for wheat of the 1938-39 crop in store have been withheld by governmental order.

Commercial wheat in store in Australia.

Stocks of wheat, stacked at country sidings and terminal ports in the States of New South Wales, Victoria, South Australia and Western Australia, during the last week of each month, amounted in May 1939 to 2,411,500 centals, in April 1939 to 30,723,000 centals, in March 1939 to 36,543,000 centals, in May 1938 to 29,265,000 centals, and in May 1937 to 22,471,000 centals

Wheat and wheat-flour in the Union of South Africa.

LOCATION	Last day of month				
	April 1939	March 1939	February 1939	April 1938	April 1937
	thousand centals				
Wheat held by millers:					
South African	4,170	4,235	3,650	3,374	4,213
Imported	21	30	47	4	3
Wheat held by co-operatives	705	820	678	305	1,646
Total	4,896	5,085	4,375	3,683	5,862
Wheat-flour and boermeal (1) held by millers	269	275	261	235	238
Grand total (2)	5,257	5,455	4,727	3,996	6,179

(1) 140 lb. of wheat flour or 165 lb. of boermeal correspond to 200 lb. of wheat. — (2) Including flour in terms of grain.

Cereals and potatoes belonging to farmers in Germany ⁽¹⁾.

PRODUCTS	May 31, 1939	April 30, 1939	May 31, 1938	May 31, 1937	May 31, 1939	April 30, 1939	May 31, 1938	May 31, 1937
	Percentage of total production				Stocks in thousand centals			
Winter wheat	7	11	3	4	7,900	12,300	2,600	3,600
Spring wheat	6	12	4	3	600	1,300	400	200
Rye	10	14	4	6	19,000	26,600	6,000	9,800
Winter barley	9	13	5	5	3,100	4,500	1,100	1,200
Spring barley	9	13	7	5	5,300	7,700	3,900	2,500
Oats	21	28	16	14	29,500	39,300	20,700	17,300
Meslin	14	21	10	11	4,000	5,900	2,500	2,300
Late potatoes	9	18	9	8	85,800	193,100	100,800	78,800

⁽¹⁾ 1937 frontiers.AUTHORITY: *Reichsnährstand* (The absolute figures are calculated by the International Institute of Agriculture).Cereals ⁽¹⁾ in elevators, mills, manufacturing establishments, etc. ⁽²⁾ in Germany ⁽³⁾.

PRODUCTS AND LOCATION	Last day of month				
	May 1939	April 1939	March 1939	May 1938	May 1937
	thousand centals				
WHEAT:					
Grain in mills and elevators (a)	50,742	52,583	54,426	26,418	13,578
Grain held by manufacturers, etc. (b)	1,065	913	988	117	152
Flour for bread in mills, etc. (a)	2,220	3,042	3,494	2,515	1,570
Flour for bread held by manufactur- ers, etc. (b)	29	33	29	31	35
TOTAL ⁽⁴⁾	54,618	57,340	59,816	29,716	15,761
RYE:					
Grain in mills and elevators (a)	58,337	59,975	60,702	29,011	14,295
Grain held by manufacturers, etc. (b)	2,061	1,673	1,731	1,285	271
Flour for bread in mills, etc. (a)	1,737	2,200	2,368	1,325	1,365
Flour for bread held by manufactur- ers, etc. (b)	11	9	9	22	11
TOTAL ⁽⁴⁾	62,556	64,375	65,367	31,899	16,224
BARLEY:					
In mills and elevators (a)	7,158	7,959	8,691	4,438	1,373
In manufacturing establishments, etc. (b) . .	3,086	4,919	6,980	2,008	747
TOTAL	10,244	12,878	15,671	6,446	2,120
OATS:					
In mills and elevators (a)	6,504	6,645	6,682	4,383	2,381
In manufacturing establishments, etc. (b) . .	886	911	884	661	584
TOTAL	7,390	7,556	7,566	5,044	2,965
MESLIN	826	757	789	388	97
MAIZE:					
In mills and elevators (a)	2,216	2,379	2,738	7,103	7,242
In manufacturing establishments, etc. (b) . .	425	459	534	368	586
TOTAL	2,641	2,838	3,272	7,471	7,828

⁽¹⁾ Excluding quantities in transit and stocks in the hands of bakers. — ⁽²⁾ Including cereals (a) in elevators and commercial mills, and (b) in the hands of manufacturers of mixed feedingstuffs, malt, coffee substitutes and other foodstuffs, and in breweries. — ⁽³⁾ 1937 frontiers. — ⁽⁴⁾ Including flour in terms of grain, on a basis which, in accordance with government regulations on milling, has been altered several times.

Imported grain and flour at the ports of the United Kingdom and Ireland.

PRODUCTS AND LOCATION	First day of month				
	June 1939	May 1939	April 1939	June 1938	June 1937
	thousand centals				
WHEAT AS GRAIN:					
United Kingdom	9,360	11,256	11,928	4,440	4,920
Ireland	2,304	2,760	2,040	408	672
TOTAL	11,664	14,016	13,968	4,848	5,592
WHEAT-FLOUR (calculated as grain):					
United Kingdom	¹⁾ 456	²⁾ 480	³⁾ 432	624	1,032
Wheat and flour, total . . .	12,120	14,496	14,400	5,472	6,624
BARLEY:					
United Kingdom	680	840	920	720	1,120
OATS:					
United Kingdom	192	224	240	160	224
MAIZE:					
United Kingdom	1,296	1,296	1,584	1,454	2,256
Ireland	1,008	1,104	1,032	178	528
TOTAL	2,304	2,400	2,616	1,632	2,784

(¹⁾ Including 5,000 centals in Irish ports. — (²⁾ Including 10,000 centals in Irish ports.
 AUTHORITY: *Broomhall's Corn Trade News, Liverpool.*

Imported cereals in Antwerpen, Rotterdam and Amsterdam.

PRODUCTS AND LOCATION	Saturday nearest 1st of month (¹⁾)				
	June 1939	May 1939	April 1939	June 1938	June 1937
	thousand centals				
WHEAT:					
Antwerpen	710	674	1,156	813	1,435
Rotterdam	2,672	2,167	2,452	570	1,853
Amsterdam	82	93	42	14	23
RYE:					
Antwerpen	34	84	57	21	30
Rotterdam	25	7	0	35	94
Amsterdam	0	0	0	0	0
BARLEY:					
Antwerpen	57	67	84	132	406
Rotterdam	15	0	7	6	13
Amsterdam	6	8	3	0	0
OATS:					
Antwerpen	20	15	9	24	32
Rotterdam	8	0	0	4	0
Amsterdam	41	43	45	23	19
MAIZE:					
Antwerpen	85	105	93	181	246
Rotterdam	30	17	26	176	143
Amsterdam	20	40	55	2	16

(¹⁾ For Antwerpen the data refer to the last day of the preceding month, for Amsterdam to the first day of the month indicated.

AUTHORITIES: *Nederlandsche Silo-, Elevator- en Graanfactor Mij., Amsterdam, and Chamber of Commerce and Industry for Rotterdam, Rotterdam.*

Wheat in collective depots ⁽¹⁾ in Italy.

SPECIFICATION	Last day of month				
	May 1939	April 1939	March 1939	May 1938	May 1937
	thousand centals				
Deliveries:					
During the month	209	201	244	284	135
Since the beginning of the coml. season ⁽²⁾	90,968	90,759	90,559	87,361	60,388
Sales:					
During the month	6,982	6,657	5,641	5,217	2,167
Since the beginning of the coml. season	79,118	72,137	65,480	82,091	58,933
Stocks at the end of the month	11,850	18,622	25,079	5,270	1,455

⁽¹⁾ Farmers are required to deliver all wheat, except that retained for home consumption or seed, to collective depots (*ammassi collettivi*). — ⁽²⁾ Including a small quantity carried over from the preceding crop.

Cotton stocks on hand in the United States.

LOCATION	Last day of month				
	May 1939	April 1939	March 1939	May 1938	May 1937
	thousand centals				
In consuming establishments	5,832	6,414	7,031	7,872	8,861
In public storage and at compresses . . .	61,473	64,446	67,034	49,982	17,523
TOTAL . . .	67,305	70,860	74,065	57,854	26,384

Cotton stocks at Bombay, Alexandria and Port Sudan.

LOCATION	Thursday nearest 1st of month ⁽¹⁾				
	June 1939	May 1939	April 1939	June 1938	June 1937
	thousand centals				
Bombay ⁽²⁾	4,575	4,479	4,426	5,004	4,266
Alexandria ⁽³⁾	2,285	2,350	2,956	2,808	1,157
Port Sudan	736	602	638	980	507

⁽¹⁾ For Port Sudan the data refer to the last day of the preceding month. — ⁽²⁾ Stocks held by exporters, dealers and millers. — ⁽³⁾ Quantities consumed in Alexandria, or returned to the interior of the country, are not included.

AUTHORITIES: East Indian Cotton Assn. and Commission de la Bourse de Minet-el-Bassal.

Cotton stocks in Europe.

LOCATION, DESCRIPTION	Thursday or Friday nearest 1st of month ⁽¹⁾				
	June 1939	May 1939	April 1939	June 1938	June 1937
	thousand centals				
<i>Great Britain:</i>					
American	1,402	1,757	1,899	3,883	1,920
Argentine	38	44	56	34	145
Brazilian	278	364	476	338	437
Peruvian	637	699	748	353	303
East Indian	178	252	181	131	342
Egyptian	669	586	566	480	458
Sudanese	416	354	384	296	522
W. Indian, W. and E. African, and other.	242	266	235	273	285
<i>Total . . .</i>	<i>3,860</i>	<i>4,322</i>	<i>4,545</i>	<i>5,788</i>	<i>4,312</i>
<i>Bremen:</i>					
American	509	608	679	899	686
South American	80	97	139	70	54
Other	116	150	167	145	168
<i>Total . . .</i>	<i>705</i>	<i>855</i>	<i>985</i>	<i>1,114</i>	<i>908</i>
<i>Le Havre:</i>					
American	378	600	754	1,215	848
South American	44	71	103	33	31
French Colonial	53	85	101	29	33
Other	15	24	29	45	57
<i>Total . . .</i>	<i>490</i>	<i>780</i>	<i>987</i>	<i>1,322</i>	<i>969</i>
<i>Total Continent ⁽²⁾:</i>					
American	1,031	1,435	1,663	2,439	1,601
South American	124	167	244	102	98
East Indian	90	102	101	89	100
Egyptian	97	108	126	102	91
W. Indian, W. and E. African, and other.	167	248	248	156	172
<i>Total . . .</i>	<i>1,509</i>	<i>2,060</i>	<i>2,382</i>	<i>2,888</i>	<i>2,072</i>
<i>Grand total . . .</i>	<i>5,369</i>	<i>6,382</i>	<i>6,927</i>	<i>8,676</i>	<i>6,384</i>

⁽¹⁾ Thursday for the Continent, Friday for Great Britain. — ⁽²⁾ Including Bremen and Le Havre.

AUTHORITIES: *Liverpool Cotton Assn.* and (for Le Havre) *Bulletin de Correspondance de la Bourse du Havre.*

Rye and barley in farmers' hands in the United States on June 1st.

PRODUCTS	Percentage of total production ⁽¹⁾			Stocks in thousand centals		
	1939	1938	1937	1939	1938	1937
Rye	28.5	17.6	17.7	8,782	4,871	2,509
Barley	20.7	14.3	14.4	25,007	15,113	10,228

⁽¹⁾ Percentages are of the previous year's crop.

PRICES

PRICES BY PRODUCTS

All quotations are spot, on Fridays, unless otherwise stated. The monthly averages are based on the Friday quotations, and the yearly averages on the monthly.

DESCRIPTION	June	June	June	May	May	AVERAGE					Commercial		
	16	9	2	26	19	May	June	June	Season (')		1937-38	1936-37	
	1939	1939	1939	1939	1939	1939	1938	1937					
Wheat (1)													
Budapest: Tisza wheat, 78 kg. p. hl. (pengő p. quintal)	19.75	20.07	20.27	20.17	20.30	20.37	24.90	19.77	21.44	19.04			
Braila: Home-grown, good qual. (lei p. ql.)	410	415	420	410	415	* 413	565	* 490	520	* 486			
Winnipeg: No. 1 Manitoba (cents p. 60 lb.)	62 7/8	62	65	66	65 7/8	65 5/8	112 7/8	122 7/8	131 1/4	122 3/4			
Chicago: No. 2 Hard Winter (cents p. 60 lb.)	n. 75	n. 78 1/2	n. 80 1/2	n. 82 1/4	n. 80 1/2	n. 80 1/4	81	124 5/8	96 5/8	130			
Minneapolis (cents p. 60 lb.):													
No. 1 Northern	79 7/8	81 3/4	85	85 7/8	82 1/4	82 1/8	90 3/8	134 3/8	104 3/8	141			
No. 2 Amber Durum	74 7/8	77 1/8	77 7/8	79 1/8	75	76 1/4	80 3/8	109	93 1/4	138 3/4			
New York: No. 2 Hard Winter (cents p. 60 lb.)	94 1/2	96 3/4	94 1/2	95 1/4	89 7/8	92 1/8	98 3/8	138 3/4	112 7/8	142 3/8			
Buenos Aires (a): No. 2 Hard, 80 kg. p. hl. (paper pesos p. quintal)	7.00	7.00	7.00	7.00	7.00	7.00	9.36	13.16	12.20	12.28			
Karachi: White Karachi, 2% barley, 1 1/2% impurities (rupees p. 65 lb.)	23-4-0	22-14-0	23-13-0	24-0-0	25-14-0	25-9-9	22-0-0	30-5-6	26-15-9	31-4-11			
Hamburg (c. i. f.; Rm. p. quintal):													
No. 1 Manitoba	7.56	7.56	7.91	7.88	7.93	7.97	12.57	13.23	14.50	13.32			
Barusso, 80 kg. p. hl.	5.67	5.70	5.76 b	5.78	5.76	5.80	9.36	13.08	11.45	11.90			
Antwerpen (francs p. quintal):													
Home-grown	130.00	130.00	129.00	129.00	129.00	129.50	131.25	146.50	135.05	135.40			
No. 1 Manitoba (Atlantic; c. i. f., arrived)	89.00	89.50	89.00	91.00	91.00	92.10	141.85	153.40	171.20	154.50			
Bahia (c. i. f., arrived) (7)	74.00	75.00	74.50	74.50	75.00	75.35	111.50	150.00	142.10	141.05			
London, Mark Lane: English (sh. p. 504 lb.; on the farm)	21/6	21/6	21/1 1/2	21/6	23/3	23/8 1/2	36/-	42/-	37/7 1/2	40/1 3/4			
Liverpool and London (c. i. f., parcels, shipping current month; sh. p. 480 lb.):													
French (on sample)	b) 18/7 1/2	b) 19/1 1/2	b) 19/6	n. 19/9	19/10 1/2	20/1 3/4	n. q.	n. q.	n. q.	n. q.			
Danubian (on sample)	18/9	18/9	18/9	b) 19/-	19/9	19/10	n. q.	40/7 1/2	* 36/2 1/2	* 38/1 1/2			
Soviet (on sample)	n. q.	n. q.	n. q.	n. q.	n. q.	n. q.	32/5 1/2	n. q.	* 38/5 1/2	n. q.			
No. 1 Northern Manitoba (Atlantic)	26/10 1/2	26/11 1/4	28/1 1/2	b) 28/3 3/4	b) 28/1 1/2	28/4 3/4	b) 42/2 1/2	45/5	50/5 1/2	* 46/0 1/4			
No. 1 Northern Manitoba (Pacific)	25/11 1/4	26/3	27/6	b) 27/9 3/4	b) 27/5 1/4	27/10 3/4	n. q.	b) 46/4 1/2	* 50/8	* 45/9 3/4			
No. 3 Northern Manitoba (Pacific)	23/2 1/4	23/6 3/4	24/6	b) 24/9 3/4	b) 24/5 1/4	24/9 3/4	b) 37/10 1/4	b) 44/2 1/2	* 41/10 1/2	* 43/6			
No. 2 Hard Winter (Gulf)	n. q.	n. q.	n. q.	n. q.	n. q.	n. q.	b) 34/7	b) 43/7 1/2	39/0 3/4	n. q.			
Soft White Pacific	n. q.	n. q.	n. q.	n. q.	n. q.	n. q.	29/4	n. q.	* 33/10 1/4	n. q.			
Rosafé, 63 1/2 lb. p. bushel (7)	20/-	20/3 1/4	21/-	b) 21/2 1/4	21/1 1/2	21/5	b) 32/10 3/4	n. q.	38/2 1/4	* 39/3 3/4			
Choice White Karachi	n. q.	n. q.	n. q.	n. q.	n. q.	n. q.	29/6 1/2	42/1 1/2	* 36/5 3/4	42/5 1/4			
West Australian (cargoes)	22/-	22/-	23/3	23/6	23/9	23/9	31/11 1/4	43/2 1/4	37/7 1/2	43/4 1/2			
New South Wales (cargoes)	22/6	22/6	23/3	23/6	23/9	23/9	31/9	43/2 1/4	37/6	43/0 1/4			

* Indicates that the product was not quoted during part of the period under review. — n. q. = not quoted. — n. = nominal. — (a) Thursday prices.

(1) For fixed prices of wheat see Crop Report July 1938, p. 68r (for Berlin and Italy) and Sept. 1938, p. 86i (for France). — (2) Before Aug. 1937, "Barusso". — (3) As from January 1939: 64 lb. — (4) August-July. — (5) Shipping June. — (6) Shipping June-July. — (7) Shipping July. — (8) Afloat. — (9) Dark Hard Winter, on sample. — (10) Shipping August. — (11) Barusso.

DESCRIPTION	AVERAGE										
	June	June	June	May	May	May	June	June	Commercial		
	16	9	2	26	19				Season *)		
	1939	1939	1939	1939	1939						
Rye (1).											
Hamburg: Plata, 72-73 kg. p. hl. (c.i.f.; Rm. p. quintal)	5.26	5.29	5.23 ^{a)}	5.23	5.23	5.39	n. q.	13.11	*	11.08	10.30
Budapest: Pest rye (pengö p. quintal)	13.15	13.30	13.25	13.50	14.20	14.17	17.79	20.60		18.57	17.17
Warszawa: Good quality (zloty p. quintal)	15.37	15.50	15.50	15.50	15.37	15.53	21.43	26.78		22.52	21.58
Winnipeg: No. 2 rye (cents p. 56 lb.)	45 ¹ / ₈	44 ¹ / ₈	47 ¹ / ₈	50 ¹ / ₈	47 ¹ / ₈	46 ¹ / ₈	52 ¹ / ₈	113 ¹ / ₈		72 ¹ / ₈	98 ³ / ₈
Minneapolis: No. 2 rye (cents p. 56 lb.)	51	51	54	55 ¹ / ₈	51 ¹ / ₈	50	55 ¹ / ₈	98 ¹ / ₈		67 ¹ / ₈	99 ⁷ / ₈
Antwerpen (francs p. quintal):											
Home-grown	n. q.	n. q.	n. q.	n. q.	n. q.	n. q.	121.50	133.60		124.85	n. q.
Soviet (c.i.f., arrived)	53.00	52.50	52.00	52.50	53.50	54.50	89.75	147.00		112.50	114.90
Plata (c.i.f., arrived)	61.00	60.00	60.00	61.00	62.50	64.35	112.00	150.60		124.55	122.85
Groningen (a): Home-grown (fl. p. quintal)	8.45	8.35	8.25	8.25	8.27	8.23	6.94	n. q.	*	7.12	8.12
Barley (1).											
Warszawa (zloty per quintal):											
Malting, good quality	n. q.	n. q.	n. q.	n. q.	n. q.	n. q.	n. q.	n. q.		22.41	25.12
Barley for other purposes, 1st quality	18.62	18.37	18.37	18.37	18.37	18.56	18.47	25.44		19.76	22.71
Braila: Average quality (lei p. quintal)	360	355	360	350	360	358	383	367		365	321
Winnipeg: No. 4 Western (cents p. 48 lb.)	34 ¹ / ₈	35 ¹ / ₈	35 ¹ / ₈	37 ¹ / ₈	37 ¹ / ₈	38 ¹ / ₈	51	60 ¹ / ₈		56 ¹ / ₈	66 ¹ / ₈
Chicago: Feeding (on sample; cents p. 48 lb.)	42 ¹ / ₈	42	40	40	40	39 ¹ / ₈	43 ¹ / ₈	63 ¹ / ₈		51 ¹ / ₈	74 ¹ / ₈
Minneapolis: No. 2 Feeding (cents p. 48 lb.)	45 ¹ / ₈	45 ¹ / ₈	45 ¹ / ₈	45 ¹ / ₈	42 ¹ / ₈	43 ¹ / ₈	46 ¹ / ₈	59 ¹ / ₈		53 ¹ / ₈	77 ¹ / ₈
Antwerpen (c.i.f., arrived; frs. per ql):											
Danubian	70.00	70.00	69.50	70.00	71.50	73.00	101.85	112.40		106.10	107.75
No. 2 Federal (2)	71.00	71.00	69.00	69.50	69.50	71.00	94.85	n. q.		100.80	n. q.
London, Mark Lane: English malting, good quality (sh. p. 448 lb., on farm)	n. 35/-	n. 35/-	n. 35/-	n. 35/-	n. 35/-	35/-	46/6	39/-	*	53/-	41/2
Liverpool and London (c.i.f., parcels; shipping current month; sh. p. 400 lb.):											
Danubian, 3 % impurities	n. q.	^{a)} 17/6	n. q.	n. q.	n. q.	n. q.	^{a)} 21/9	^{a)} 27/6		n. q.	* 23/5
Soviet (Azov - Black Sea)	n. q.	17/6	^{a)} 17/6	^{a)} 17/6	^{a)} 18/3	^{a)} 17/10 ¹ / ₈	^{a)} 21/9	n. q.	*	24/-	n. q.
No. 3 Canadian Western (Atlantic)	18/7 ¹ / ₈	18/9	19/4 ¹ / ₈	^{a)} 19/6	^{a)} 20/-	20/0 ¹ / ₈	24/1	28/7 ¹ / ₈		25/11	* 27/3
No. 3 Federal (Atlantic)	n. q.	n. q.	n. q.	n. q.	n. q.	n. q.	^{a)} 20/8 ¹ / ₈	n. q.		22/3	n. q.
No. 1 Californian brewing (sh. p. 448 lb.)	^{a)} 29/3	^{a)} 29/-	29/-	29/3	29/6	29/9 ^{a)}	^{a)} 29/3	^{a)} 39/6 ¹ / ₈		34/11 ¹ / ₈	* 40/6
Plata, 64-65 kg. p. hl. (1)	18/3	18/6	18/3	^{a)} 18/1 ¹ / ₈	^{a)} 18/-	18/6 ¹ / ₈	n. q.	27/6	*	26/4 ¹ / ₈	25/0 ¹ / ₈
Iraqian	^{a)} 16/6	17/-	16/4 ¹ / ₈	^{a)} 16/9	17/6	17/8	21/2 ¹ / ₈	25/1		24/5 ¹ / ₈	23/11
No. 1 Australian Chevalier (sh. p. 448 lb.)	25/9	25/9	25/9	25/10 ¹ / ₈	26/-	25/10 ¹ / ₈	n. q.	n. q.	*	37/3	* 39/4
Groningen (a): Home-grown, winter (fl. p. q.)	n. q.	n. q.	n. q.	7.95	7.95	* 7.97	6.60	7.95		6.91	7.68
Oats (1).											
Winnipeg: No. 2 White (cents per 34 lb.)	30 ⁷ / ₈	30 ⁷ / ₈	31	31 ¹ / ₈	30	30 ¹ / ₈	45 ¹ / ₈	56 ¹ / ₈		50 ¹ / ₈	52 ¹ / ₈
Chicago: No. 2 White (cents per 32 lb.)	35 ¹ / ₈	36 ¹ / ₈	35 ¹ / ₈	36 ¹ / ₈	34 ¹ / ₈	35 ¹ / ₈	29 ¹ / ₈	49 ¹ / ₈		32 ¹ / ₈	49 ¹ / ₈
Buenos Aires (b): No. 2 White, 49 kg. p. hl. (paper pesos p. quintal)	4.35	4.35	4.35	4.35	4.40	4.40	6.06	6.27		6.32	6.25
Paris: Home-grown (delivery regional depots; frs. p. quintal)	73.00	76.25	77.75	73.50	86.00	87.00	142.65	122.15		128.75	115.80
London, Mark Lane: English white (sh. p. 336 lb., on farm)	19/6	19/7 ¹ / ₈	19/6	19/6	20/6	19/10 ¹ / ₈	26/2 ¹ / ₈	27/4 ¹ / ₈		26/6 ¹ / ₈	23/9 ¹ / ₈
Liverpool and London (c.i.f., parcels; shipping current month; sh. p. 320 lb.):											
No. 1 Canadian feed (Atlantic)	^{a)} 16/3	^{a)} 16/11 ¹ / ₈	^{a)} 16/3	^{a)} 16/3	^{a)} 16/3	^{a)} 16/3 ¹ / ₈	22/5 ¹ / ₈	^{a)} 26/11 ¹ / ₈	*	24/-	* 24/-
No. 2 Canadian Western (Atlantic)	^{a)} 16/10 ¹ / ₈	^{a)} 16/9	^{a)} 17/-	^{a)} 17/0 ¹ / ₈	^{a)} 17/10 ¹ / ₈	^{a)} 17/0 ¹ / ₈	^{a)} 17/1 ¹ / ₈	n. q.	n. q.	n. q.	23/4 ¹ / ₈
Plata, f. a. q.	11/4 ¹ / ₈	11/6	11/7 ¹ / ₈	11/6	^{a)} 11/7 ¹ / ₈	11/9 ¹ / ₈	14/11 ¹ / ₈	17/7		15/11 ¹ / ₈	16/3 ¹ / ₈
Milano (c) (lire p. quintal):											
Home-grown	102.50	101.00	99.50	99.50	99.50	99.50	101.25	107.50		100.05	99.60
Foreign	102.50	102.50	102.50	99.50	99.50	99.00	101.25	106.25		97.15	100.45

* Indicates that the product was not quoted during part of the period under review. — n. q. = not quoted. — n. = nominal. — (a) Prices on preceding Tuesday. — (b) Thursday prices. — (c) Saturday prices.

(1) For the fixed prices of rye, feeding barley and oats in Berlin see Crop Report July 1938, p. 68r; for those of malting barley in Praha see Crop Report August 1938, p. 78r. — (2) As from Sept. 23, 1938: No. 3 Federal. — (3) Also indicated as "fair average quality" (f.a.q.). — (4) August-July. — (5) Shipping June. — (6) Shipping July-August. — (7) Adroit. — (8) Shipping July. — (9) New crop, shipping July-August. — (10) Shipping Pacific coast.

DESCRIPTION	June 16 1939	June 9 1939	June 2 1939	May 26 1939	May 19 1939	Average				Commercial Season (1)	
	May 1939	June 1938	June 1937			May 1939	June 1938	June 1937		1938-39	1937-38
Maize.											
Braila: Average quality (lei p. quintal).	400	405	405	405	405	408	345	310		362	* 313
Chicago: No. 3 Yellow (cents p. 56 lb.).	50 3/4	52	52	52	52 1/4	51 1/8	57 1/4	121		51 1/2	83
Buenos Aires (a): Yellow Plata (paper pesos p. quintal).	6.37	6.35	6.12	6.00	5.90	6.04	7.40	6.29		6.89	7.79
Antwerpen (c. i. f., arrived; francs p. qt.):											
Bessarabian	76.50	77.00	76.50	76.00	81.50	81.35	96.35	n. q.		87.90	n. q.
Yellow Plata	75.00	74.00	74.50	73.50	82.50	82.00	99.85	88.05		90.20	101.00
Cinquantino (Argentina "Cuarentino")	89.50	89.00	87.00	86.50	92.00	93.00	133.75	99.90		118.05	109.05
Marseille (c. i. f., arrived; frs. p. 100 kg.):											
No. 1 Indochinese	119.00	121.00	120.00	124.00	122.00	126.00	130.75	93.00		121.65	109.60
No. 1 Madagascar	107.00	107.00	n. q.	n. q.	108.00	110.85	...	...		...	...
Liverpool and London (c. i. f., parcels; shipping current month; sh. p. 480 lb.):											
Danubian	n. q.	n. q.	22/9	n. q.	n. q.	n. q.	n. q.	25/11 1/4		* 24/7	* 27/5
Yellow Soviet	n. q.	n. q.	n. q.	n. q.	22/3	n. q.	n. q.	n. q.		* 24/2	n. q.
No. 2 Yellow American (Gulf)	n. q.	n. q.	n. q.	n. q.	23/7 1/2	24/-	24/6 1/4	25/10		24/10 1/4	* 27/2
Yellow Plata	22/9 3/4	22/10 1/2	22/3	22/3	22/3	22/8 1/4	26/9 1/2	25/5 1/2		25/4 1/2	28/4
No. 2 White flat African	22/6	22/9	n. q.	22/2	22/3	22/4 1/4	n. q.	22/3		n. q.	* 27/10
Milano (b): Yellow, home-grown (lire p. quintal) (2)	90.00	90.00	90.00	90.00	90.00	90.00	89.00	82.00		89.70	83.00
Rice (milled) (2).											
Rangoon (delivery current month; rupees p. 7500 lb.):										1938	1937
No. 2 Europe (Burma)	248-8	248-8	248-8	255-0	247-8	253-2	259-12	252-0		255-12	263-4
Kanungtoe, small mills specials	239-8	227-0	230-0	235-0	230-0	234-8	232-2	224-8		219-12	235-13
Big mills specials	224-0	225-0	224-0	227-0	225-0	228-10	217-8	218-12		207-0	229-6
Saigon (Indochinese piastres p. quintal):											
No. 1 Round white, 25 % broken	9.18	9.41	9.79	10.02	10.05	9.99	11.32	6.50		10.66	7.85
No. 2 Japan, 40 % broken	8.62	8.77	9.10	9.42	9.51	9.51	10.69	6.20		10.11	7.58
Marseille: No. 1 Saigon (c. i. f., arrived; frs. p. quintal)	119.00	125.00	129.00	126.00	128.00	128.00	150.20	87.25		138.65	104.90
London (a) (c. i. f., shipping current month; shillings p. cwt.):											
Italian oil	17/9	17/9	17/9	17/9	17/9	17/9	18/6	* 17/6		* 17/10	* 17/-
American Blue Rose, extra fancy	15/6	15/9	16/-	16/-	15/10 1/2	15/11 1/4	15/1 1/4	18/6 3/4		15/0 1/2	18/1 1/4
No. 2 Rangoon (London Standard)	8/1 1/2	8/1 1/2	8/1 1/2	8/1 1/2	8/1 1/2	8/2 1/4	8/6 1/4	8/10 1/2		8/3 1/4	9/2 1/4
No. 1 Saigon	7/6	7/7 1/2	7/9	7/10 1/2	8/-	7/11 1/4	8/8 1/4	8/10 1/2		8/5 1/2	9/2 1/4
Siam Super (London Standard)	8/6	8/7 1/2	8/7 1/2	8/7 1/2	8/7 1/2	8/6 1/4	9/4	9/11 1/4		9/2 1/4	10/8
Tokyo: "Tyumai", brown Japanese, average quality (yen p. koku).	35.70	35.50	35.20	35.20	35.20	35.20	34.12	32.52		34.26	32.37
Linseed.											
Buenos Aires (a): Current quality, 4 % impurities (paper pesos p. quintal)	15.30	15.50	14.90	14.57	14.30	14.40	14.05	15.41		14.31	15.47
Bombay: Bold (rupees p. cwt.)	7-6-0	7-8-0	7-6-3	7-6-0	7-5-6	7-5-1	6-14-9	7-14-6		7-4-10	7-14-10
Antwerpen: Plata (c. i. f., arrived; frs. p. quintal)	164.00	162.50	159.50	156.50	156.00	156.50	160.50	183.60		166.20	183.10
London (c. i. f., shipping current month; £ p. long ton):											
Plata (delivery Hull)	12-0-0	12-1-3	11-15-0	11-11-3	11-10-0	11-10-11	11-3-1	12-19-8		11-10-11	12-16-5
Bombay bold	13-8-9	13-10-0	13-10-0	13-8-9	13-8-9	13-7-10	12-10-11	15-6-3		13-3-9	15-5-7
Duluth: No. 1 Northern (futures; cents p. 56 lb.) (3).	174	175 1/4	174	170	169	* 166 1/4	175 1/8	191 1/4		183 7/8	204 1/4
Minneapolis: No. 1 Northern (cts. p. 56 lb.).	180 1/2	183 1/2	n. 183	n. 179 1/2	179 1/4	178 1/4	179	191 1/4		190	209 1/2
Cottonseed.											
Alexandria (a) (piastres p. ardeb):										1937-38	1936-37
Upper Egyptian	52.8	52.2	55.4	54.2	55.7	55.3	53.2	72.4		55.3	77.8
Sakellariadis	51.2	50.9	54.1	52.8	53.1	52.8	48.6	66.8		50.7	72.6
London: (c. i. f.; £ p. long ton):											
Egyptian black (shipping current month)	5-12-6	5-12-6	5-17-6	5-15-0	5-16-3	5-17-10	5-15-4	7-9-8		6-1-6	8-3-3
Sakellariadis (arrived) (4)	n. 5-5-0	n. 5-3-9	n. 5-8-9	n. 5-8-9	n. 5-11-3	n. 5-11-10	n. 5-10-0	7-1-10		5-17-6	* 7-16-8

* Indicates that the product was not quoted during part of the period under review. — n. q. = not quoted. — n. = nominal. — (4) Thursday prices. — (b) Saturday prices.

(1) Maximum prices for best quality, except from Feb. to June 1938. Always: free at producer's station. — (2) For the maximum prices of rice in Italy, see Crop Report Oct. 1938, p. 979. — (3) Quotations refer to May futures from January to May, to July futures in June and July, to September futures in August and September and to December futures during the remaining months. — (4) From June 8, 1938 indicated as Mela-Sakellariadis. — (5) Maize: May-April; cottonseed: Sept.-Aug. — (6) Shipping July. — (7) Shipping May-June. — (8) Afloat. — (9) Shipping June. — (10) Shipping August-Sept. — (11) Shipping July-August. — (12) Shipping June-July. — (13) Revised averages: April 247-12, March 227-8. — (14) Revised averages: April 227-12, March 210-13. — (15) Revised averages: April 223-12, March 208-0. — (16) 12 and 5 May, 28 and 21 April: 35-20. — (17) July futures.

DESCRIPTION						Average					
	June	June	June	May	May	May	June	June	Commercial		
	16	9	2	26	19						
	1939	1939	1939	1939	1939	1939	1938	1937	Season	(*)	
Cotton.											
									1937-38	1936-37	
New Orleans: Middling (cents p. lb.) . . .	n. 9.45	9.50	9.40	9.52	9.47	9.32	8.46	12.56	8.87	12.78	
New York: Middling (cents p. lb.) . . .	n. 9.86	n. 9.99	n. 9.78	n. 9.82	n. 9.78	n. 9.59	8.37	12.78	8.75	12.91	
Bombay (rupees p. 784 lb.):											
Broach, f.g. (futures) (1)	173-4	173-14	166-12	171-6	168-12	165-7	145-14	231-3	166-11	224-14	
Broach, f.g. (spot)	175-0	178-0	171-0	173-0	174-0	168-12	145-0	231-0	* 162-9	* 228-4	
Oomra, fine (spot)	164-0	167-0	161-0	162-0	169-0	160-0	132-4	225-8	* 148-13	* 214-14	
Alexandria (a) (talaris p. kantar):											
Sakellariadis, f.g.f.	11.55	11.80	11.55	11.70	11.50	11.26	11.94	19.06	14.19	19.22	
Giza 7, f.g.f.	11.52	11.77	11.52	11.67	11.52	11.31	11.65	17.77	12.81	17.22	
Ashmuni, f.g.f.	9.77	9.87	9.52	9.67	9.62	9.42	9.52	17.45	10.62	15.19	
Bremen: Middling (U.S. cents p. lb.) . .	11.75	11.91	11.50	11.51	11.40	11.18	10.13	14.81	10.63	15.01	
M.g. Broach, f.g. (pence p. lb.) . . .	n. 4.80	n. 4.80	n. 4.75	n. 4.75	n. 4.75	n. 4.65	n. 4.22	n. 6.22	n. 4.68	n. 5.78	
Le Havre: Middling (futures; frs p. 50 kg.) (2)	n. 448.50	n. 444.50	445.50	445.50	469.00	445.85	419.25	398.25	392.75	366.65	
Liverpool (pence per lb.):											
Middling, super good	6.46	6.47	6.19	6.18	6.29	6.09	5.38	7.91	5.79	7.89	
Middling	5.76	5.77	5.49	5.48	5.54	5.41	4.62	7.06	4.97	7.11	
São Paulo, g.f.	5.56	5.67	5.24	5.28	5.39	5.29	4.73	7.21	5.16	7.21	
Broach, good staple, f.g.	7) n. 4.20	7) n. 4.24	7) n. 4.16	7) n. 4.09	7) n. 4.17	7) n. 4.07	n. 3.63	n. 5.94	n. 4.04	n. 5.71	
C.P. Oomra, superfine	7) 4.44	7) 4.48	7) 4.40	7) 4.33	7) 4.41	7) 4.36	3.85	5.99	4.29	5.85	
Egyptian Sakellariadis, f.g.f.	6.63	6.69	6.57	6.51	6.52	6.43	7.44	10.54	8.22	10.79	
Giza 7, f.g.f.	6.73	6.79	6.67	6.61	6.62	6.48	6.84	9.89	7.42	* 9.72	
Upper Egyptian, f.g.f.	5.91	5.86	5.85	5.73	5.83	5.68	5.62	9.22	6.31	8.46	
Bacon.											
									1938	1937	
London, Provision Exchange (b) (shillings p. cwt.):											
English, No. 1, lean sizable	90/-	88/-	88/-	88/-	88/-	88/-	98/5	86/6	99/1	94/5	
Danish, No. 1, sizable	90/-	90/-	90/-	90/-	90/-	90/-	98/5	88/-	99/3	94/1	
Irish, No. 1, sizable	87/-	86/-	84/-	84/-	83/-	83/3	95/1	86/-	95/11	92/9	
Lithuanian, No. 1, sizable	82/-	80/-	80/-	80/-	80/-	80/-	94/-	80/3	91/8	87/4	
Dutch, No. 1, sizable	85/-	83/-	83/-	83/-	83/-	83/-	96/2	84/6	96/1	91/4	
Polish, No. 1, sizable	82/-	80/-	80/-	80/-	80/-	80/-	94/-	80/3	92/2	87/4	
Swedish, No. 1, sizable	85/-	83/-	83/-	83/-	83/-	83/-	96/2	84/6	96/1	91/2	
Canadian, No. 1, sizable	82/-	80/-	80/-	80/-	80/-	80/-	94/-	79/3	91/10	86/3	
Butter (3).											
Köbenhavn (a): Danish, for export (cns. p. quint.)	215.00	222.00	207.00	207.00	216.00	216.75	218.40	197.00	230.49	224.45	
Leeuwarden, Commission for butter quotations (a): Dutch, for export (cents p. kg.) (4)	75	78	74	69	66	69 1/4	80 1/4	74	80 1/4	77 1/8	
Antwerpen, auction: Belgian (frs. p. kg.)	19.05	19.15	18.70	18.85	19.00	18.75	19.95	21.30	23.30	22.65	
Liverpool: Irish creamery (sh. p. cwt.)	116/-	118/-	113/9	108/-	105/6	106/9	116/7	111/4	* 124/6	121/3	
London (c): English blended (sh. p. cwt.)	135/4	135/4	135/4	135/4	135/4	136/6	136/6	128/4	132/7	131/7	
London, Provision Exchange (b) (sh. p. cwt.):											
Danish creamery, unsalted	123/6	126/6	122/-	119/6	123/6	124/-	123/11	114/7	* 130/-	127/1	
Lithuanian, unsalted	114/-	113/6	111/-	103/6	102/-	103/6	115/7	* 108/-	* 115/8	* 114/11	
Dutch creamery, unsalted	108/-	112/6	109/-	103/-	99/-	101/7	112/10	105/10	113/10	109/7	
Argentine, finest, unsalted	n. q.	n. q.	n. q.	n. q.	n. q.	n. q.	n. q.	n. q.	* 103/-	* 94/4	
Siberian, salted	n. q.	n. q.	n. q.	n. q.	n. q.	n. q.	n. q.	n. q.	n. q.	* 100/2	
Australian, finest, salted	111/6	115/6	112/-	107/6	103/6	107/-	119/2	108/4	114/9	109/8	
New Zealand, finest, salted	114/-	117/6	114/-	109/-	105/-	108/10	121/11	109/9	117/1	110/5	
Montreal (d): First grade creamery (cents p. lb.)	21 3/4	22 3/4	21 3/4	20 7/8	20 3/4	21	25 1/8	24 3/4	27	* 27 1/8	
New York (d): 92 score, creamery (cents p. lb.)	24 3/4	24 1/4	24	23 3/4	23 1/4	23 1/4	26	31	28	34 1/4	

* Indicates that the product was not quoted during part of the period under review. — n. q. = not quoted. — n. = nominal. — (a) Thursday prices. — (b) Average prices Thursdays, and Friday mornings. — (c) Average prices for weeks commencing on Thursdays. — (d) Wednesday prices.

(1) Quotations refer to April-May futures during the period September-May following, and to July-August futures during the other months. — (2) Quotations refer to futures for the current month. — (3) For fixed prices of butter in Germany see Crop Report Nov. 1938, p. 1080. — (4) For home prices these quotations must be increased by a consumption tax which, up to May 19, 1939 amounted to 53 cents per kg. and to 60 cents as from that date. — (5) Cotton: August-July. — (6) July-August futures. — (7) Fair staple. — (8) "Red", butter.

DESCRIPTION	June	June	June	May	May	AVERAGE				
	16	9	2	26	19	May	June	June	Commercial Season	
	1939	1939	1939	1939	1939	1939	1938	1937	1938	1937
Cheese (1).										
Milano (lire p. quintal):										
Parmigiano-Reggiano, 1st quality, production 1936 (2)	n. q.	n. q.	n. q.	n. q.	n. q.	n. q.	n. q.	n. q.	* 1,229.00	* 868.80
Parmigiano-Reggiano, 1st quality, production 1937 (3)	1,220.00	1,220.00	1,220.00	1,210.00	1,210.00	1,210.00	1,220.00	950.00	1,130.85	895.15
Gorgonzola green, mature, choice . .	790.00	790.00	780.00	780.00	780.00	765.00	796.00	700.00	773.10	714.60
Roma: Roman Pecorino, choice (lire p. quintal)	1,100.00	1,100.00	1,100.00	1,100.00	1,100.00	1,100.00	1,050.00	937.50	1,058.30	954.05
Alkmaar: Edam 40 +, National Mark, factory cheese, small (florins p. 50 kg.)	17.50	17.00	16.50	17.00	17.25	17.44	19.56	19.80	21.33	19.73
Gouda: Gouda 45 +, National Mark, farm made, 1st quality (florins p. 50 kg.)	24.00	23.25	23.25	22.50	21.75	21.81	24.69	23.80	25.72	25.21
London, Provision Exchange (a) (shillings p. cwt.):										
English Cheddar, finest farmers . . .	95/-	95/-	95/-	95/-	95/-	94/9	n. q.	n. q.	* 92/1	* 90/3
English Cheshire, Nat. Mark Selected.	68/10	68/10	70/-	72/4	77/-	80/2	* 80/6	82/3	96/9	97/10
Italian Gorgonzola	110/10	108/6	106/2	102/8	100/4	101/2	104/6	99/8	103/2	103/6
Dutch Edam, 40 + (b)	49/6	50/-	50/-	50/6	50/6	50/1	53/1	51/6	59/3	57/1
Canadian, finest white (b)	71/6	71/6	71/6	72/-	71/-	72/-	79/-	79/-	75/3	73/7
New Zealand, finest white	61/-	59/-	52/9	50/6	49/6	53/6	68/6	74/2	69/6	66/6
Eggs.										
Antwerpen, auction: Belgian, average quality (frs. p. 100)	49.00	50.00	44.00	42.00	43.00	41.25	53.00	38.00	58.80	52.05
Denmark (c): Danish for export (crs. per quintal)	80.00	80.00	80.00	100.00	100.00	97.00	103.00	69.00	116.70	109.13
Apeldoorn (d): Dutch, average quality 57/58 gr. each (fl. p. 100)	3.30	3.10	3.20	3.10	3.25	3.25	3.36	2.76	3.85	3.77
Barneveld (e): Dutch, average quality 57/58 gr. each (fl. p. 100)	3.10	3.15	3.15	3.15	3.20	3.26	3.35	2.70	3.90	3.77
Warszawa (b): Polish, average quality, 50 gr. each (zloty p. 100) . . . . .	...	5.75	5.75	5.75	5.75	5.75	6.61	6.19	8.31	8.11
Liverpool: Irish, extra selected (sh. p. 120)	9) 11/3	9) 11/-	9) 10/6	9) 10/6	9) 10/6	9) 10/6 1/4	11/0 1/2	8/10 1/2	13/7 1/2	13/1
London, Egg Exchange (d) (shillings p. 120):										
English, National Mark, specials . . .	15/6	14/-	12/9	12/3	12/6	12/4 3/4	14/7 1/2	13/11 1/4	17/9 1/2	17/3
Belgian, 15 3/4 lb. p. 120	n. q.	n. q.	n. q.	n. q.	n. q.	n. q.	n. q.	n. q.	* 11/8	* 10/4
Danish, 17 lb. p. 120	9/10 1/2	8/10 1/2	9/4 1/2	9/1 1/2	9/4 1/2	9/6 1/2	11/0 1/4	9/2 1/2	12/7 1/2	12/2 1/2
Northern Irish, specials (2)	14/6	12/3	11/10 1/2	10/7 1/2	10/10 1/2	11/1 1/2	13/9	13/3	16/8 1/2	16/7
Lithuanian, 17 lb. per 120	8/4 1/2	8/3	8/6	8/3 1/4	8/6	8/7 1/4	10/1 1/2	8/1	* 10/10	* 10/2
Dutch, all brown, 67/69 grams each .	11/9	11/-	11/-	10/9	11/-	11/0 1/2	12/8 1/2	12/-	14/3 1/2	14/1
Polish, 53/54 grams each	6/6	6/4 1/2	6/7 1/2	6/4 1/2	6/5 1/4	6/9 1/4	8/2 1/2	6/6 1/2	* 8/4	* 7/9 1/2
Romanian, 53/54 grams each	6/6 1/4	6/6	6/7 1/2	6/4 1/2	6/6	6/9	8/2	n. q.	8/7 1/4	* 8/5 1/2
Chinese, "violet"	n. q.	n. q.	n. q.	n. q.	n. q.	n. q.	n. q.	n. q.	n. q.	* 8/11 1/2
South African, 17 lb. per 120	n. q.	n. q.	n. q.	n. q.	n. q.	n. q.	n. q.	n. q.	* 13/11	* 13/8
Australian, 16 lb. p. 120	n. q.	n. q.	n. q.	n. q.	n. q.	n. q.	n. q.	n. q.	* 12/10	* 11/8

* Indicates that the product was not quoted during part of the period under review. — n. q. = not quoted. — n. = nominal. — (a) Average prices Thursdays and Friday mornings. — (b) Average weekly prices. — (c) Average prices for weeks commencing on Thursdays. — (d) Prices on following Mondays. — (e) Thursday prices.

(1) For fixed prices of cheese in Germany see Crop Report August 1938, p. 782. — (2) Prices of 1936 cheese are compared with the yearly and monthly averages of cheese made in 1935 and 1934; prices of 1937 cheese with those of 1936 and 1935. The yearly averages refer to periods from Sept. to August. See Crop Report Jan. 1938, p. 92. — (3) Before Oct. 18, 1937, "Extra special" quality. — (4) "Special" quality.

OCEAN FREIGHT RATES (1)

DESCRIPTION	WEEK ENDING ON					AVERAGE			Commercial season (2)	
	June 17 1939	June 10 1939	June 3 1939	May 27 1939	May 20 1939	May 1939	June 1938	June 1937	1937-38	1936-37
Shipments of wheat and maize.										
<i>Rates in shillings per quarter:</i>										
Port Churchill to picked ports United Kingdom	n. q.	n. q.	n. q.	n. q.	n. q.	n. q.	n. q.	n. q.	* 3/11 1/2	* 2/10 1/2
Montreal to picked ports United Kingdom	2/9	2/9	2/9	2/9	2/9	2/9	2/9 1/2	3/0 1/2	* 3/3 3/4	* 2/6 1/2
St. John to Liverpool (3)	n. q.	n. q.	n. q.	n. q.	n. q.	n. q.	n. q.	n. q.	* 3/5	* 2/10 1/2
New York to Liverpool (3)	2/11	2/11	2/11	2/11	2/11	2/11	2/11 1/2	n. q.	* 3/3	n. q.
American Northern Range to picked ports United Kingdom or N.W. Continent	n. 2/9	n. 2/9	n. 2/9	n. 2/9	n. 2/9	n. 2/9	n. q.	2/10	* 3/6	* 2/9
Mexican Gulf to picked ports United Kingdom or N.W. Continent (4)	n. 3/3	n. 3/3	n. 3/3	n. 3/3	n. 3/3	n. 3/3	2/11 1/2 *	4/6	* 4/0 1/2	n. q.
<i>Rates in shillings per long ton:</i>										
Ports of lower Danube to Antwerpen or Rotterdam	13/9	14/-	14/-	14/-	14/-	14/-	12/6	n. q.	* 22/10	* 20/4
Russian Black Sea ports to Antwerpen or Rotterdam	n. 10/6	n. 10/9	n. 10/9	n. 11/-	n. q.	n. q.	10/3 1/2	n. q.	17/1 1/2	* 16/6
North Pacific coast to picked ports United Kingdom	25/-	24/3	23/11	23/2	23/2	23/3	22/11	40/-	33/3	* 29/6
La Plata Down River to picked ports United Kingdom or N.W. Continent	20/10 1/2	20/10 1/2	20/9	20/3	20/1 1/2	20/5	24/-	n. 30/-	27/5 1/2	24/1 3/4
La Plata Up River to picked ports United Kingdom or N.W. Continent	21/10	21/10	21/10	21/2	21/2	21/4	25/-	31/3	28/6	24/10 1/2
South Australia to United Kingdom or N.W. Continent (wheat in bulk)	31/2	31/2	31/2	31/2	31/2	31/2	32/-	43/1	39/4	34/1
Shipments of rice.										
<i>Rates in shillings per long ton:</i>										
Saigon to picked French ports or Rotterdam	n. 26/9	n. q.	26/4	26/8	26/9	26/7 1/2	27/6	49/-	* 30/6	45/3
Burma to United Kingdom or N.W. Continent	n. 26/6	n. 26/6	n. 26/6	n. 26/6	26/6	n. 26/6	n. q.	n. 45/-	* 31/8	* 39/6

* Indicates that the rate was not quoted during part of the period under review. — n. q. = not quoted. — n. = nominal.

(1) Average rates for entire cargoes, except where otherwise stated, relating to contracts made, during periods often extending back several months, to operate during the weeks specified. For more detailed explanations see the article with the same title on p. 392 of the Crop Report for April 1939. — (2) Shipments of wheat and maize: Aug.-July. — (3) Rates for parcels by liners. — (4) Before October 1937, rates for parcels by liners. — (5) Freight quoted at Braila, not comparable with the other rates. — (6) Revised data: Weeks ending on May 13: 23/2; May 6: 23/-; April 29, 22 and 15: 22/8; April 8: 22/9; April 1 and March 25: 23/3. Averages: April: 22/8; March: 23/3.

AVERAGE MONTHLY PRICES IN GOLD FRANCS PER QUINTAL ⁽¹⁾

DESCRIPTION	May 1939	May 1938	May 1937	DESCRIPTION	May 1939	May 1938	May 1937
Wheat.				Cotton.			
Winnipeg: No. 1 Manitoba .	7.34	12.87	14.66	New Orleans: Middling . .	62.89	58.44	88.54
Chicago: No. 2 Hard Winter.	9.05	9.42	14.68	Bombay (futures):			
Buenos-Aires: No. 2 Hard .	6.69	11.57	13.87	M.g. Broach, f.g.	49.85	49.24	74.56
Karachi: White Karachi . .	9.22	8.62	12.48	Alexandria:			
Liverpool and London (c.i.f.):				Sakellaris, f.g.f.	73.68	85.82	134.43
No. 1 Manitoba (Pacific) .	9.19	* 15.34	17.05	Meat (dead weight).			
No. 2 Hard Winter	n. q.	12.35	n. q.	<i>Beef, home-grown:</i>			
Rosafé	7.05	12.45	15.68	Paris	91.77	88.13	136.75
W. Australian	7.82	11.40	16.18	London	102.90	106.51	115.21
Rye.				<i>Mutton, home-grown:</i>			
Warszawa: Home-grown . .	9.03	12.78	14.38	Paris	161.43	136.98	213.41
Minneapolis: No. 2 rye . .	6.03	6.94	13.17	London	113.60	99.53	157.38
Barley.				<i>Pork, home-grown:</i>			
Winnipeg: No. 4 Western .	5.35	7.60	9.37	Denmark	102.40	124.57	117.43
Minneapolis: No. 2 Feeding.	6.06	7.06	9.74	Rotterdam (live weight) .	75.47	87.23	80.71
Antwerpen: Danubian . .	7.58	10.90	11.74	Paris (live weight)	77.44	73.19	87.34
Liverpool and London (c.i.f.):				London	114.42	123.14	110.86
No. 3 Canadian Western .	7.91	10.46	12.45	Bacon.			
Plata	7.32	n. q.	11.89	London:			
Oats.				English, No. 1, lean sizable	124.20	148.93	135.65
Winnipeg: No. 2 White . .	6.02	9.79	11.19	Danish, No. 1, sizable . .	127.02	150.42	140.49
Chicago: No. 2 White . . .	7.49	6.33	11.47	Butter.			
Buenos Aires: No. 2 White .	4.20	6.31	6.86	Köbenhavn: Danish	134.72	155.45	126.37
Liverpool and London (c.i.f.):				Leeuwarden: Dutch	113.62	150.35	118.97
Plata	5.81	7.92	9.36	London:			
Maize.				Danish	175.00	193.83	164.34
Chicago: No. 3 Yellow . . .	6.22	6.99	16.37	New Zealand, salted . . .	153.60	193.08	159.13
Buenos Aires: Yellow Plata.	5.77	8.27	6.69	Cheese.			
Liverpool and London (c.i.f.):				Alkmaar: Edam 40 + . . .	57.23	67.76	58.21
Yellow Plata	7.47	10.02	9.16	London:			
Rice.				English Cheddar	133.72	n. q.	n. q.
Rangoon: No. 2 Burma . .	7.97	8.64	8.57	New Zealand	75.51	116.12	115.15
Saigon: No. 1 Round white.	8.09	9.63	8.67	Eggs (per 100).			
London (c.i.f.): No. 2 Burma	11.56	12.72	13.29	Denmark: Danish (per ql.) .	62.08	66.80	49.67
				London:			
				English	7.41	8.32	7.03
				Danish	5.70	6.75	5.47
				Dutch	6.60	7.88	6.94

⁽¹⁾ Extracts from tables published in the January, April, July and October issues; for method of conversion into gold francs per quintal, see these issues; for detailed specification of qualities and conditions, see "Prices by products".

**INDEX-NUMBERS OF PRICES OF AGRICULTURAL PRODUCTS
AND OF COMMODITIES BOUGHT BY THE FARMER**

DESCRIPTION	May	April	March	Feb.	Jan.	Dec.	May	May	YEAR	
	1939	1939	1939	1939	1939	1938	1938	1937	1937-38 (¹)	1936-37 (¹)
Germany										
(Statistisches Reichsamt; products sold by farmers)										
Average for corresponding months 1909-10/1913-14 = 100.										
Cereals	109	104	113	113	112	112	105	101	110	105
Edible potatoes	122	116	114	106	110	111	122	122	114	115
Plant products	113	107	114	112	112	112	110	107	111	107
Meat animals	99	97	97	97	95	95	97	96	95	94
Livestock products (butter and eggs) . .	119	113	107	107	109	108	119	116	109	108
Livestock and livestock products . .	106	102	100	100	100	99	105	103	99	99
Total agricultural products	107	104	103	103	103	103	106	103	102	101
Germany										
(Statistisches Reichsamt; wholesale products)										
1913 = 100.										
Foodstuffs of plant origin	119.5	118.4	118.0	116.9	116.1	115.2	117.2	115.5	115.9	115.0
Livestock	90.7	90.4	90.3	90.2	90.0	90.4	87.2	86.2	88.6	87.2
Livestock products	111.2	111.2	114.0	115.2	117.4	115.8	111.6	108.6	112.9	110.9
Feedingstuffs	109.3	109.1	108.9	108.8	108.5	108.2	107.5	107.7	107.2	106.0
Total agricultural products	107.8	107.3	107.8	107.6	107.8	107.2	105.8	104.1	105.9	104.6
Fertilizers	54.2	57.3	57.3	57.3	56.5	55.1	54.6	57.1	55.3	57.0
Agricultural dead stock	110.8	110.8	110.8	110.7	110.7	110.8	110.9	112.7	111.3	112.7
Consumption goods (¹)	135.5	135.7	135.4	135.0	135.0	135.1	135.6	132.5	135.4	133.3
Wholesale products in general	106.5	106.4	106.6	106.5	106.5	106.3	105.4	105.9	105.7	105.9
England and Wales (²)										
(Ministry of Agriculture and Fisheries)										
Average 1927-1929 = 100.										
A: UNCORRECTED FOR SEASONAL VARIATION										
Cereals and farm crops	86	95	84	79	79	76	108	115	86 ¹ / ₂	98 ¹ / ₂
Livestock and livestock products . .	81	89	92	96	99	98	80	77	88	88
Total agricultural products	82	90	90	93	95	94	84	83	90	90 ¹ / ₂
Wholesale products in general (³) . .	83.8	83.3	82.8	83.0	83.3	84.2	87.4	94.9	86.9	93.1
B: CORRECTED FOR SEASONAL VARIATION										
Cereals and farm crops	86	96	85	80	80	77	108	116	—	—
Livestock and livestock products . .	92	94	92	89	90	88	89	84	—	—
Total agricultural products	91	94	90	88	89	86	92	90	—	—

(¹) Household goods of all kinds, and clothing. — (²) Index-numbers taking account of payments under the Wheat Act the Cattle Subsidy Act, and Government payments for milk. — (³) Index-numbers by the Board of Trade, reduced to 1927-1929 = 100. — (⁴) Agricultural year: July 1-June 30.

DESCRIPTION	May	April	March	Feb.	Jan.	Dec.	May	May	YEAR	
	1939	1939	1939	1939	1939	1938	1938	1937	1938	1937
Argentina										
(Banco Central de la Republica Argentina) 1926 = 100.										
Cereals and linseed	74.7	75.6	78.1	72.4	77.4	77.2	95.6	102.4	90.6	101.3
Meat	89.5	90.8	90.7	88.0	84.5	86.2	97.2	87.6	94.8	93.6
Hides and skins	79.7	75.0	84.3	81.8	86.6	87.9	75.1	123.9	81.9	118.6
Wool	86.6	85.8	85.5	84.5	86.8	84.9	95.3	153.9	92.5	143.7
Dairy products	82.8	78.3	78.1	78.2	74.0	63.1	85.1	85.8	83.9	93.7
Forest products	101.6	101.6	101.6	101.6	101.6	100.5	100.8	97.8	100.0	98.6
Total agricultural products	78.8	78.9	81.3	77.0	80.4	80.1	93.9	105.9	90.6	105.1
Non agricultural commodities	109.1	109.3	109.0	109.2	109.2	109.1	109.5	116.5	109.4	114.4
Wholesale products in general.	102.7	102.9	103.2	102.4	103.1	103.0	106.3	114.4	105.5	112.6
Australia (Commonwealth)										
(Commonwealth Bureau of Census and Statistics) 1928-29 = 100.										
Agricultural field products	74.2	74.6	77.5	80.2	78.4	78.1	86.1	...	91.4	94.9
Pastoral products	65.6	73.1	74.6	66.5	65.8	66.6	72.1	...	78.6	85.7
Farmyard and dairy products	86.1	87.3	89.1	89.3	87.7	87.4	83.9	...	81.1	76.1
Total agricultural products	72.3	76.3	78.3	75.4	74.2	74.4	79.1	...	83.4	87.0
Belgium										
(Belgische Boerenbond — Boerenbond belge) Average of corresponding months 1909-1914 = 100.										
Field products . . . . .	...	518	486	480	504	489	609	576	541	577
Livestock products . . . . .	...	624	634	644	687	719	674	559	689	617
Total agricultural products . . . . .	...	591	587	592	629	646	653	565	643	604
Rent . . . . .	...	650	650	650	650	650	650	645	650	647
Agricultural wages . . . . .	...	910	905	900	900	900	880	850	887	851
Fertilizers . . . . .	...	476	474	475	471	478	478	433	471	443
Feedingstuffs . . . . .	...	579	545	547	585	574	691	573	631	610
Total production expenses (including those not specified) . . . . .	...	761	753	752	759	751	767	727	757	736
Bohemia										
(Institut for Farm Accounting and Agricultural Economics) 1913-14 = 100										
A: SUGARBEET REGION										
Plant products	646	646	637	636	619	591	606	564	584	576
Livestock products	648	617	576	559	562	575	491	540	531	550
Total agricultural products	647	634	612	604	595	584	559	554	562	565
Total production expenses	851	841	831	826	818	805	803	784	801	783
B: NON-SUGARBEET REGION										
Plant products	699	696	686	683	677	668	666	609	656	623
Livestock products	631	591	561	545	553	556	466	533	504	539
Total agricultural products	658	633	611	600	603	601	546	563	565	572
Total production expenses	876	859	849	843	833	819	808	798	811	796

(1) July 1-June 30.

DESCRIPTION	May	April	March	Feb.	Jan.	Dec.	May	May	YEAR	
	1939	1939	1939	1939	1939	1938	1938	1937	1938	1937
Canada										
(Dominion Bureau of Statistics, Internal Trade Branch) 1926 = 100.										
Field products (grain, etc.)	55.9	56.1	54.9	54.7	54.7	53.8	74.6	89.0	69.0	88.3
Livestock and livestock products	80.7	81.3	82.1	81.5	81.7	82.8	81.8	85.7	81.3	85.0
Total Canadian farm products	65.2	65.5	65.1	64.7	64.8	64.6	77.3	87.8	73.6	87.1
Fertilizers	82.9	83.4	83.4	83.0	82.8	82.8	75.4	74.5	78.9	74.5
Consumers' goods (other than foodstuffs, beverages and tobacco)	75.1	75.3	75.4	76.1	76.2	76.7	77.3	78.7	77.2	78.4
Wholesale products in general.	73.7	73.4	73.2	73.2	73.2	73.3	80.3	85.2	78.6	84.6
Chili										
(Dirección General de Estadística) 1913 = 100										
Cereals . . . . .	...	438.2	438.9	443.5	445.9	461.5	548.3	592.9	551.0	572.3
Other plant products . . . . .	...	383.3	341.8	350.0	340.4	359.0	396.0	406.7	375.4	375.3
Meat animals. . . . .	...	312.2	327.2	325.4	320.5	329.4	370.4	343.0	380.3	381.2
Meat . . . . .	...	280.6	280.5	280.1	285.1	283.9	290.0	273.1	324.7	316.2
Total agricultural products . . . . .	...	382.9	363.9	359.1	365.1	379.9	429.4	443.9	424.3	430.0
Domestic industrial products . . . . .	...	430.8	424.5	428.0	429.0	460.1	472.5	493.9	472.5	489.4
Wholesale products in general. . . . .	...	484.5	475.6	473.6	475.1	489.9	514.3	534.2	510.7	522.6
United States										
(Bureau of Agricultural Economics) Average 1909-10 to 1913 14 = 100.										
A: UNCORRECTED FOR SEASONAL VARIATION ⁽¹⁾										
Cereals	72	67	66	66	66	63	79	149	74	126
Cotton and cottonseed	72	70	71	70	71	70	71	112	70	95
Fruits	85	82	81	78	76	73	77	152	73	122
Truck crops (market garden crops)	110	102	114	108	96	108	99	118	105	123
Meat animals.	112	114	116	116	112	109	111	133	114	132
Dairy products	92	95	100	107	109	112	103	116	109	124
Chickens and eggs	85	87	88	91	97	127	98	96	108	111
Miscellaneous	83	86	83	92	109	108	82	133	95	130
Total agricultural products	90	89	91	92	94	96	92	128	95	121
Commodities bought for use in living and production ⁽²⁾	120	120	120	120	120	120	125	134	123	130
Agricultural wages ⁽³⁾	—	121	—	—	117	—	^{a)} 121	^{a)} 112	116	120
B: CORRECTED FOR SEASONAL VARIATION										
Cereals	70	66	65	65	67	64	77	146	—	—
Cotton and cottonseed	70	69	72	72	73	74	69	109	—	—
Fruits	75	79	82	82	83	81	69	136	—	—
Truck crops (market garden crops)	110	102	114	108	96	108	88	139	—	—
Meat animals	110	110	113	117	116	116	108	131	—	—
Dairy products	95	96	98	104	105	107	106	120	—	—
Chickens and eggs	101	105	107	90	86	98	117	116	—	—
Miscellaneous	81	86	87	98	109	107	80	129	—	—
Total agricultural products	89	90	92	93	95	96	92	127	—	—

⁽¹⁾ Except for truck crops. — ⁽²⁾ 1910-1914 = 100. — ⁽³⁾ April.

DESCRIPTION	May	April	March	Feb.	Jan.	Dec.	May	May	YEAR	
	1939	1939	1939	1939	1939	1938	1938	1937	1938	1937
United States										
(Bureau of Labor)										
1926 = 100.										
Grains	59.6	55.2	54.5	54.7	56.3	54.4	62.3	113.9	60.6	98.3
Livestock and poultry	73.2	75.5	78.2	79.2	78.0	74.4	77.9	95.9	79.0	95.5
Other farm products	58.7	58.5	61.0	62.9	63.2	66.5	62.2	79.0	63.9	77.2
Total agricultural products	63.7	63.7	65.8	67.2	67.2	67.6	67.5	89.8	68.5	86.4
Agricultural implements	93.4	93.3	93.2	93.2	93.4	93.5	96.3	93.8	95.5	94.0
Fertilizer materials	69.7	69.6	69.7	69.3	70.2	68.6	69.6	70.6	69.2	71.2
Mixed fertilizers	71.8	72.8	73.8	73.7	74.8	73.8	69.3	72.2	72.2	73.2
Cattle feed	87.4	92.1	84.1	78.2	79.9	76.6	78.6	139.9	76.9	110.5
Non-agricultural commodities	78.8	78.8	79.0	78.9	78.9	79.0	80.3	86.7	80.6	86.2
Wholesale products in general	76.2	76.2	76.7	76.9	76.9	77.0	78.1	87.4	78.6	86.3
Finland										
(Central Bureau of Statistics)										
1935 = 100.										
Agricultural products	114	114	115	119	118	120	117	112	117	115
Forestry products	152	149	145	140	145	146	145	158	145	165
Feedingstuffs	123	126	129	133	123	121	137	132	129	133
Fertilizers	111	110	109	107	107	105	113	109	109	109
Wholesale products in general	114	113	113	113	113	113	113	122	114	122
Hungary										
(Central Royal Bureau of Statistics)										
1929 = 100.										
Cereals	86.4	88.7	88.6	85.1	85.2	84.9	97.8	88.4	89.1	88.9
Total raw plant products ⁽¹⁾	79.1	81.5	80.8	76.9	76.5	75.4	84.2	68.2	76.9	69.2
Meat animals, meat and lard	64.4	61.6	61.7	62.9	63.9	65.7	65.0	75.2	68.4	75.5
Total livestock products ⁽¹⁾	64.5	63.9	64.1	65.4	64.6	64.9	64.0	68.4	65.6	68.5
Total agricultural products	74.5	76.0	75.6	73.3	72.8	72.1	77.8	68.3	73.4	69.0
Products of agricultural industries	93.3	94.8	95.0	95.0	95.4	95.3	110.6	106.5	103.0	106.2
Industrial raw materials and products	92.1	92.0	92.0	92.1	92.2	92.6	93.1	96.0	93.3	95.2
Wholesale products in general	85.5	86.2	86.0	85.2	85.1	85.0	89.3	86.5	86.8	86.3
Ireland										
(Department of Industry and Commerce)										
Average 1911-1913 = 100.										
Agricultural products in general . . . . .	...	115.5	110.4	109.4	109.6	113.0	111.4	106.5	111.9	104.9
Italy										
(Istituto Centrale di Statistica)										
1928 = 100.										
Plant products . . . . .	...	...	...	...	...	89.3	89.7	78.9	88.6	79.7
Livestock products . . . . .	...	...	...	...	...	86.3	82.6	87.8	86.7	91.1
Total agricultural products . . . . .	...	...	...	...	...	88.2	87.3	81.4	87.8	82.8
Feedingstuffs . . . . .	...	...	...	...	...	102.3	103.0	82.2	99.6	83.6
Fertilizers, and chemicals for plant diseases . . . . .	...	...	...	...	...	100.0	102.4	92.6	100.7	94.2
Wholesale products in general	96.7	97.9	97.6	97.2	97.1	96.4	95.7	87.8	95.3	89.1

⁽¹⁾ Including unspecified products.

DESCRIPTION	May	April	March	Feb.	Jan.	Dec.	May	May	YEAR	
	1939	1939	1939	1939	1939	1938	1938	1937	1938	1937
Lithuania										
(Lietuvos Bankas)										
1926-1929 = 100.										
Cereals . . . . .	...	41	41	39	39	39	42	48	41	46
Cattle, fowls . . . . .	...	55	54	53	52	53	52	51	51	49
Leather, hides, wool . . . . .	...	52	53	54	54	53	49	62	51	60
Meat, dairy products and eggs . . . . .	...	46	47	49	51	51	46	42	47	44
Total agricultural products . . . . .	...	47	47	46	47	47	46	48	46	47
Wholesale products in general . . . . .	...	52	52	51	52	52	51	52	51	51
Norway										
(Kgl. Selskap for Norges Vel)										
Average 1909-1914 = 100.										
Cereals	163	163	163	166	167	167	173	172	168	173
Potatoes	140	140	141	147	150	134	247	134	174	188
Pork	124	115	116	125	133	133	118	103	127	117
Other meat	166	165	169	166	162	171	192	165	179	187
Dairy products	179	179	179	179	179	179	174	153	176	165
Eggs	103	110	99	99	114	143	101	96	124	124
Concentrated feedingstuffs	156	154	155	154	155	157	155	151	158	152
Maize	160	160	160	159	162	158	156	139	158	149
Fertilizers	94	94	94	94	93	92	103	90	98	95
New Zealand										
(Census and Statistics Office)										
Average 1909-1913 = 100.										
Dairy products	118.8	117.0	123.9	124.9	115.9	114.2	129.0	103.3	121.0	109.2
Meat	161.5	164.6	167.2	170.7	175.0	177.8	175.5	164.5	175.2	165.1
Wool	105.1	108.4	110.4	108.9	114.3	117.8	114.9	190.8	117.6	176.8
Other pastoral products	86.7	82.0	85.0	92.5	90.0	90.6	88.3	151.8	94.7	153.5
All pastoral and dairy products	125.0	125.6	129.8	131.4	130.2	131.7	136.5	144.5	134.0	142.3
Field products	141.6	154.6	153.4	145.1	136.0	136.3	136.1	138.4	139.6	136.5
Total agricultural products	125.4	126.3	130.4	131.7	130.3	131.8	136.5	144.3	134.2	142.2
Poland										
(Central Bureau of Statistics)										
1928 = 100.										
Raw plant products	40.3	39.5	37.6	36.4	36.2	36.3	50.4	55.8	43.6	53.4
Meat animals	44.7	44.3	44.4	44.0	42.3	42.4	41.0	41.9	42.1	43.5
Dairy products and eggs	41.8	47.9	47.1	49.3	50.6	52.1	42.6	47.0	47.6	48.2
Products directly sold by farmers	42.0	42.6	41.6	41.3	40.9	41.2	45.9	49.6	43.8	49.2
Flour and groats	44.1	44.5	42.8	43.7	44.2	44.7	52.8	57.5	49.1	55.9
Meat and lard-fat . . . . .	...	50.3	48.4	47.8	48.1	47.4	48.3	47.6	48.3	48.1
Sugar, alcohol, beer	71.3	71.3	71.3	71.3	71.3	71.3	71.3	71.3	71.3	71.3
Products of agricultural industries	55.3	55.3	54.1	54.1	54.4	54.4	57.3	58.6	56.1	58.3
Total agricultural products	48.6	48.9	47.7	47.6	47.6	47.7	51.5	54.0	49.9	53.7
Commodities bought by farmers	64.9	64.9	64.9	64.7	64.5	64.4	65.2	66.3	65.0	66.1
Wholesale products in general	55.6	55.6	55.1	55.0	54.9	55.0	56.9	59.9	56.2	59.4

(1) Agricultural year: April 1-March 31.

DESCRIPTION	May	April	March	Feb.	Jan.	Dec.	May	May	YEAR	
	1939	1939	1939	1939	1939	1938	1938	1937	1937-38	1936-37
									(²)	(²)
Netherlands										
(Bureau of Agriculture)										
Average 1924-25 to 1928-29 = 100.										
Plant products	64	62	59	59	59	57	66	62	63	58
Livestock products	65	66	64	60	61	62	67	63	66	57
Total agricultural products	65	65	63	60	61	61	67	62	65	57
Wholesale products in general (¹) . .	70.0	69.8	69.8	69.9	70.2	70.6	71.9	76.7	³ 71.9	³ 76.2
Agricultural wages . . . . .	...	74	74	74	74	74	74	68	69	68
Sweden										
(Sveriges Allmänna Lantbruksällskap)										
Average 1909-1913 = 100.										
Cereals	105	103	103	103	103	100	126	...	114	123
Plant products (⁴)	106	104	104	105	104	102	125	127	115	123
Meat animals.	147	146	142	142	141	132	128	123	133	126
Dairy products.	153	160	161	163	162	163	137	132	142	134
Livestock and livestock products . .	150	155	154	156	156	155	134	129	139	132
Total agricultural products	136	138	138	139	139	137	131	128	131	129
Feedingstuffs.	141	140	141	144	144	143	137	137	140	139
Fertilizers	94	94	94	94	94	93	97	94	96	94
Building materials	188	187	187	180	180	180	183	194	182	191
Machinery and implements	204	204	204	204	204	204	225	196	218	203
Sundries	121	121	120	120	120	119	126	128	124	127
Total commodities purchased	144	143	144	144	144	143	147	144	146	145
Wholesale products in general. . . .	136	135	134	134	134	134	137	147	137	145
Agricultural wages . . . . .	...	...	...	...	...	...	204	193	⁵ 204	194
Switzerland										
(Schweizerischer Bauernverband)										
1914 = 100.										
Slaughter cattle . . . . .	...	111	108	107	109	110	120	123	117	122
Slaughter pigs . . . . .	...	123	123	124	127	127	123	123	125	127
Milk (base price) . . . . .	...	121	121	121	121	121	119	119	120	118
Total agricultural products	118	117	117	117	119	120	122	122	126	125
Feedingstuffs (²)	110	111	111	109	108	108	109	99	105	97
Fertilizers (²)	101	101	101	100	100	102	95	84	96	85
Wholesale products in general (²) . .	107.0	105.9	105.3	105.2	105.7	106.1	106.9	112.5	107.1	111.2
Yugoslavia										
(National Bank of the Kingdom of Yugoslavia)										
1926 = 100.										
Plant products	83.3	84.9	85.3	85.8	86.9	85.2	90.7	69.8	85.8	74.1
Livestock products	65.7	63.5	63.1	61.9	64.1	65.7	66.2	62.7	65.8	65.1
Industrial products	76.6	76.8	76.6	76.5	76.6	76.7	79.4	76.5	78.2	77.6
Wholesale products in general. . . .	77.3	77.1	76.9	76.6	77.5	77.5	80.1	72.6	78.3	74.7

(¹) Index numbers calculated by the Central Statistical Bureau of the Netherlands; base 1926-1930. — (²) Index numbers calculated by the Bundesamt für Industrie, Gewerbe und Arbeit; base July 1914. — (³) Agricultural year: July 1-June 30. — (⁴) Calendar years 1938 and 1937 respectively. — (⁵) Including unspecified products. — (⁶) Provisional data.

VARIATIONS IN THE INDEX-NUMBERS OF PRICES

The index-numbers of prices of agricultural and other products of interest to the farmer, as published by the various countries, are often very heterogeneous and consequently great care has to be taken in drawing conclusions from the supplementary information given in the following comparative summary table.

COUNTRIES	Percentage variations in the index-numbers of prices of			
	agricultural products	all products	agricultural products	all products
	May 1939 in comparison with			
	April 1939		May 1938	
Germany (products sold by farmers)	+ 2.9	—	+ 3.9	—
Germany (wholesale prices)	+ 0.5	+ 0.1	+ 1.9	+ 1.0
England and Wales (a)	+ 8.9	+ 0.6	+ 2.4	+ 4.1
England and Wales (b)	+ 3.2	—	+ 1.1	—
Argentina	+ 0.1	— 0.2	+ 16.1	— 3.4
Australia	+ 5.2	—	+ 8.6	—
Bohemia c)	+ 2.1	—	+ 15.7	—
Bohemia d)	+ 3.9	—	+ 20.5	—
Canada	+ 0.5	+ 0.4	+ 15.7	— 3.2
United States: Bureau of Agric. Econ. (a)	+ 1.1	—	+ 2.2	—
United States: Bureau of Agric. Econ. (b)	+ 1.1	—	+ 3.3	—
United States: Bureau of Labor	+ 0.0	— 0.0	+ 5.6	— 2.4
Finland	+ 2.0	+ 0.9	+ 2.6	+ 0.9
Hungary	+ 2.0	— 0.8	+ 4.2	— 4.3
New Zealand	+ 0.8	—	+ 8.1	—
Netherlands	+ 0.0	+ 0.3	+ 3.0	— 2.6
Poland	+ 0.6	+ 0.0	+ 5.6	— 2.3
Sweden	+ 1.4	+ 0.7	+ 3.8	— 0.7
Switzerland	+ 0.8	+ 1.0	+ 3.3	+ 0.1
Yugoslavia } vegetable products.	+ 1.9	+ 0.3	+ 2.5	—
} animal products.	+ 3.5		+ 2.5	— 3.5

(a) Not corrected for seasonal variation. — (b) Corrected for seasonal variation. — c) Sugarbeet region. — d) Non sugarbeet region.

EXCHANGE RATES

RELATION OF VARIOUS CURRENCIES TO THEIR PARITY WITH THE U. S. DOLLAR (1)

NATIONAL CURRENCIES	Parity	Actual Exchange Rates					Percentage deviation from parity with U.S. dollar: premium (+) or discount (—)				
		June 16 1939	June 9 1939	June 2 1939	May 26 1939	May 19 1939	June 16 1939	June 9 1939	June 2 1939	May 26 1939	May 19 1939
Germany: reichsmark	40.332	40.097	40.093	40.115	40.104	40.115	— 0.6	— 0.6	— 0.5	— 0.6	— 0.5
Argentina: paper peso	71.959	n.31.205	n.31.225	n.31.218	n.31.211	n.31.208	— 56.6	— 56.6	— 56.6	— 56.6	— 56.6
Belgium: belga	23.542	16.991	17.024	17.023	17.021	17.020	+ 27.8	+ 27.7	+ 27.7	+ 27.7	+ 27.7
Canada: dollar.	16.950	99.705	99.824	99.807	99.695	99.631	+ 0.2	+ 0.4	+ 0.4	+ 0.4	+ 0.4
Denmark: crown.	45.374	20.893	20.901	20.901	20.895	20.893	— 0.3	— 0.2	— 0.2	— 0.3	— 0.4
Spain: peseta	32.669	n.11.022	n.11.022	n.11.022	n.11.022	n.11.022	— 66.3	— 66.3	— 66.3	— 66.3	— 66.3
France: franc (1)	6.633	2.694	2.649	2.649	2.649	2.649	— 60.1	— 60.1	— 60.1	— 60.1	— 60.1
Great Britain: £ sterling (2)	8.2397	4.6810	4.6826	4.6831	4.6816	4.6808	— 43.2	— 43.2	— 43.2	— 43.2	— 43.2
Hungary: pengo	29.612	n.19.575	n.19.575	n.19.575	n.19.575	n.19.575	— 33.9	— 33.9	— 33.9	— 33.9	— 33.9
India: rupee	61.798	34.930	34.902	34.873	34.877	34.863	— 43.4	— 43.5	— 43.6	— 43.6	— 43.6
Italy: lira	8.911	5.260	5.260	5.260	5.260	5.260	— 41.0	— 41.0	— 41.0	— 41.0	— 41.0
Japan: yen	5.263	27.276	27.287	27.286	27.274	27.283	— 0.1	— 0.1	— 0.1	— 0.1	— 0.1
Netherlands: florin	84.396	53.080	53.249	53.415	53.685	53.778	— 67.7	— 67.7	— 67.7	— 67.7	— 67.7
Poland: zloty	68.057	18.810	18.806	18.806	18.808	18.818	— 22.0	— 21.8	— 21.5	— 21.1	— 21.0
Romania: leu	18.994	n. 0.703	n. 0.712	n. 0.703	n. 0.703	n. 0.713	— 1.0	— 1.0	— 1.0	— 1.0	— 0.9
Sweden: crown	1.013	24.099	24.107	24.115	24.110	24.112	— 30.6	— 29.7	— 30.6	— 30.6	— 29.6
Switzerland: franc	45.374	22.523	22.549	22.590	22.527	22.480	— 46.9	— 46.9	— 46.9	— 46.9	— 46.9
	32.669						— 31.0	— 31.0	— 30.9	— 31.0	— 31.2

(1) Parities and current rates are both expressed in U. S. cents (the £ sterling is expressed in dollars). The dollar contains 0.38867 grams of fine gold, i. e. 10.94 % less than formerly. — (2) Former parity. — (3) New parity as from 31 March 1935. — (4) 1 Indochinese piastre = 10 francs; the actual rates vary only slightly from this. — (5) 97 1/2 Egyptian piastres = 1 £ sterling (fixed rate). — (6) New parity as from Oct. 5, 1936.

LATEST INFORMATION

TRADE

COUNTRIES PRODUCTS AND UNITS	EXPORTS		IMPORTS		COUNTRIES PRODUCTS AND UNITS	EXPORTS		IMPORTS	
	1939	1938	1939	1938		1939	1938	1939	1938
GERMANY (†)					HUNGARY				
	May	May	May	May		May	May	May	May
Wheat 1000 centals	0	0	415	1,533	Wheat 1000 centals	1,419	240	0	0
Wheat flour "	49	8	140	114	Wheat flour "	140	22	0	0
Rye "	0	0	397	55	Rye "	22	205	0	0
Barley "	0	0	725	1,122	Maize "	218	256	0	0
Oats "	0	0	10	437	Rice "	0	0	9	61
Maize "	0	0	1,199	2,310	Cotton "	0	0	69	27
Rice "	23	45	691	582	Wool 1000 lb.	0	0	333	82
Linseed "	0	0	402	137	Butter "	260	787	0	0
Cotton "	0	0	601	614	Cheese "	117	33	0	0
Wool { a). 1000 lb.	2	0	25,900	30,706	Cacao "	0	0	1,232	1,393
b). "	0	11	2,725	2,511	Tea "	0	0	60	40
Butter "	0	0	16,391	14,592	Coffee "	0	0	600	340
Cheese "	11	11	7,061	5,710					
Cacao "	0	0	14,405	15,005	NETHERLANDS				
Tea "	37	13	1,559	864	Wheat 1000 centals	0	0	1,017	791
Coffee "	0	0	29,904	36,352	Wheat flour "	1	2	186	140
					Rice "	2	163	252	24
BOHEMIA-MORAVIA (Protectorate)					Barley "	4	8	381	200
Wheat 1000 centals	0	0	34	206	Oats "	12	123	222	144
Wheat flour "	0	111	0	1	Maize "	2	0	1,118	1,118
Rice "	0	0	2	323	Rice "	235	161	1,440	862
Barley "	11	109	7	0	Linseed "	9	2	1,033	490
Oats "	5	44	0	0	Cotton "	1	2	74	88
Maize "	0	0	89	81	Wool { a). 1000 lb.	220	163	1,082	893
Rice "	0	0	8	81	b). "	42	60	937	624
Linseed "	0	0	37	85	Butter "	13,918	14,059	0	2
Cotton "	0	3	124	160	Cheese "	10,058	11,647	35	44
Wool 1000 lb.	0	73	950	3,084	Cacao "	150	236	13,036	16,722
Butter "	0	0	708	0	Tea "	18	15	3,038	2,632
Cheese "	7	161	379	214	Coffee "	1,775	1,517	6,742	10,532
Cacao "	0	0	2,498	1,704					
Tea "	0	0	137	71	POLAND-DANZIG				
Coffee "	0	0	2,601	2,255	Wheat 1000 centals	110	0	0	45
					Wheat flour "	71	44	0	0
ESTONIA					Rye "	933	133	0	1
Cotton 1000 centals	0	0	13	12	Barley "	385	439	0	0
Wool 1000 lb.	0	0	73	79	Oats "	92	29	0	0
Butter "	3,347	2,685	0	0	Rice "	0	12	144	183
Cacao "	0	0	157	60	Linseed "	0	0	15	0
Coffee "	0	0	35	24	Cotton "	0	0	158	156
					Wool 1000 lb.	0	0	5,756	5,670
FRANCE					Butter "	3,358	3,300	0	0
Wheat 1000 centals	601	0	776	856	Cheese "	2	18	44	46
Wheat flour "	467	113	67	59	Cacao "	0	0	3,001	1,537
Barley "	13	0	73	61	Tea "	0	0	311	311
Oats "	0	1	43	36	Coffee "	0	0	1,332	1,013
Maize "	1	3	610	615					
Rice "	9	25	1,872	2,208	ROMANIA				
Linseed "	0	0	309	353	Wheat 1000 centals	1,686	546	0	0
Cotton "	110	29	393	454	Rye "	38	107	9	0
Wool 1000 lb.	5,035	4,204	41,324	45,288	Barley "	336	107	0	0
Butter "	485	593	18	117	Maize "	1,385	855	0	0
Cheese "	2,624	2,209	2,249	2,908					
Cacao "	0	0	8,298	8,488					
Tea "	0	2	227	256					
Coffee "	0	2	33,918	48,019					

(a) Wool, greasy. — (b) Wool, scoured. — (†) From 1 April 1939 the data refer to the territory of the former Reich, Ostmark, the Sudetenland and Memel; they do not include trade between these territories and the Protectorate of Bohemia-Moravia.

COUNTRIES PRODUCTS AND UNITS	EXPORTS		IMPORTS		COUNTRIES PRODUCTS AND UNITS	EXPORTS		IMPORTS	
	1939	1938	1939	1938		1939	1938	1939	1938
UNITED KINGDOM					SWITZERLAND (concluded)				
	May	May	May	May		May	May	May	May
Wheat 1000 centals	115	143	9,423	9,536	Maize 1000 centals	0	0	85	52
Wheat flour "	214	191	835	840	Rice "	0	0	102	59
Barley . . . . . "	...	...	1,228	1,374	Cotton "	0	0	62	49
Oats . . . . . "	...	...	145	77	Wool 1000 lb.	33	77	2,875	1,576
Maize "	241	344	4,051	4,626	Butter "	2	0	24	13
Rice "	4	8	498	327	Cheese "	3,677	5,326	298	306
Linseed . . . . . "	...	...	523	591	Cacao "	0	0	1,695	2,892
Cotton "	68	60	901	756	Tea "	0	2	265	137
Wool 1000 lb.	23,662	38,122	112,972	109,098	Coffee "	0	0	4,725	4,286
Butter "	425	549	96,212	88,728					
Cheese "	481	441	28,570	23,744	ARGENTINA				
Cacao "	388	269	36,568	18,323	Wheat 1000 centals	10,184	2,995	—	—
Tea "	6,975	7,809	21,336	28,559	Wheat flour "	203	117	—	—
Coffee "	1,276	1,089	3,183	3,358	Rye "	285	23	—	—
					Barley "	425	150	—	—
SWEDEN					Oats "	350	499	—	—
Wheat 1000 centals	0	0	91	45	Maize "	9,610	3,448	—	—
Wheat flour "	2	2	2	0	Linseed "	1,653	1,870	—	—
Rye "	0	0	7	18	Cotton "	0	18	—	—
Oats "	16	0	4	34	Wool (a) 1000 lb.	25,655	39,732	...	...
Maize "	—	—	23	221	Wool (b) "	5,113	4,138	...	...
Rice "	—	—	64	9	Butter "	456	2,705	—	—
Linseed "	—	—	187	174	Cheese "	432	300	...	...
Cotton "	—	—	54	56					
Wool 1000 lb.	—	—	3,389	1,673	ALGERIA				
Butter "	5,657	5,124	0	0	Wheat 1000 centals	125	126	58	72
Cheese "	—	—	280	165	Wheat flour "	39	61	2	46
Cacao "	—	—	1,944	1,151	Barley "	20	22	17	12
Tea "	—	—	148	86	Oats "	1	11	14	49
Coffee "	—	—	9,952	10,818	Rice "	0	4	12	71
					Wool 1000 lb.	1,497	2,240	353	123
SWITZERLAND					Butter "	0	0	293	377
Wheat 1000 centals	0	0	775	504	Cheese "	2	2	944	959
Rye "	0	0	4	48	Cacao "	0	0	79	117
Barley "	0	0	144	150	Tea "	0	2	359	578
Oats "	0	0	519	254	Coffee "	0	0	2,780	4,032

(a) Wool, greasy. — (b) Wool, scoured.

Dott. VALENTINO DORE, gerente responsabile.

AGRICULTURAL SCIENCE AND PRACTICE

MONTHLY BULLETIN

OF

AGRICULTURAL SCIENCE AND PRACTICE

ARTIFICIAL RIPENING OF FRUITS WITH ACETYLENE

General.

The use of acetylene for artificial colouring and ripening of fruits is not new. Although until 1928 research on the use of various gases was mainly concerned with the action of certain non-saturated hydro-carburates, especially ethylene and propylene, acetylene, which is a hydrocarbon still less saturated than the other two, had been the subject of occasional and inadequate research only. In 1924, in attempting to determine the various gaseous constituents causing the coloration of fruits, F. E. DENNY (1) noticed that commercial acetylene had a very definite action, but he also observed that if this gas were purified by treatment with ethylene dibromide and by mixture with an alcoholic solution of potash, its efficacy disappeared; R. B. HARVEY (2), of the University of Minnesota, tried in 1925 to use acetylene for ripening celery. The smell of the gas is slight in concentrations of 1 %₁₀₀ and even of 1 %₁₀₀₀, such as are required for the operation. If precautions are taken to expose the vegetable to the air for a couple of hours after removal from the colouring room, no alliaceous smell or taste can be detected in celery ripened by this method. It would appear, therefore, that the action of acetylene is comparable to that of ethylene, inasmuch as it merely accelerates the process of natural ripening by stimulating the action of the enzymes normally present in the plant. Again, in 1928, HARVEY studied the action of the gas on the artificial ripening of fruits and vegetables, but merely reported that its use was not satisfactory, without describing the method employed.

A thorough study of the action of acetylene on the process of fruit ripening presented a twofold interest, however; firstly, to find out if the gas really had the same action as ethylene, and secondly, if such is the case, to find support for the hypothesis that the action of acetylene depended in some way upon the state of non-saturation of the molecule.

More complete research work has been done on this subject during the last ten years, especially in the United States, the Union of South Africa, Australia, Italy and France. Although not always in entire agreement, the results of this research work are of real interest owing to the practical results to which they have led.

Below will be found a description of the most important studies made during the last ten years in connection with the use of acetylene as an agent stimulating the colouring and ripening of fruits and vegetables.

* * *

In 1928 R. H. HARTSHORN (4) submitted a study to the « Physiological Section of the Bot. Soc. Amer. », on the effects of acetylene on the ripening of bananas. His conclusions are as follows:

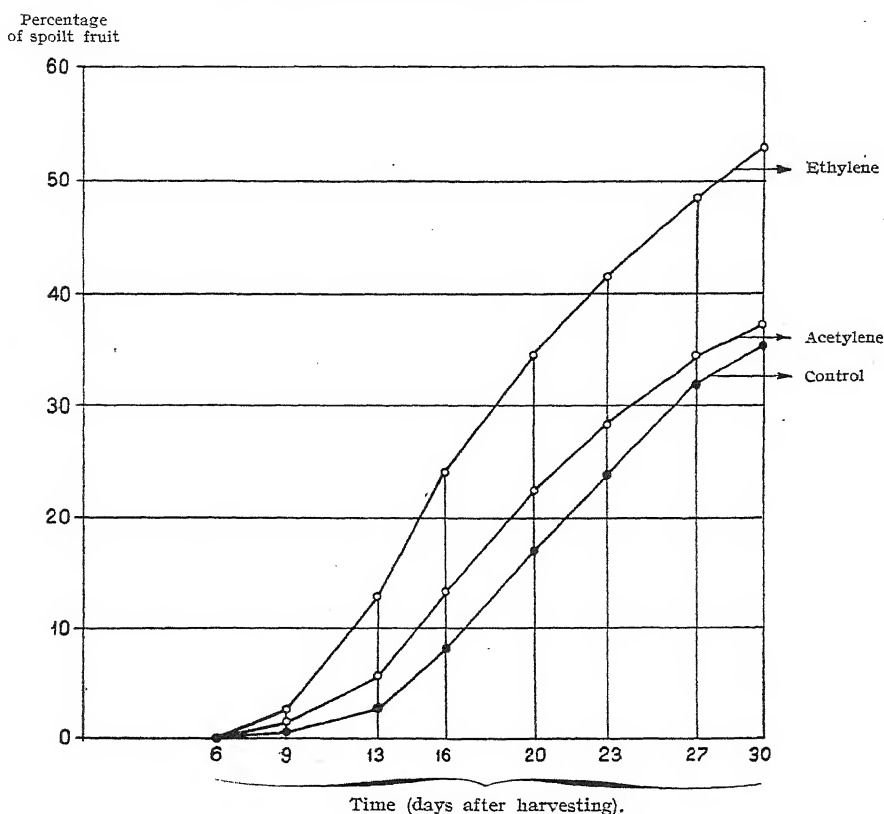
Acetylene treatment hastens the ripening process of entirely green fruit. This is proved by the increase in the rate at which the pulp softens and in the rate of respiration and by the rapid alteration in taste and colour. Since purified gas was used in many of these experiments, the results cannot be attributed to ammonia or other impurities in the acetylene. The principal effect of the gas appears to be a shortening of the period of least activity which occurs normally at the beginning of the ripening process and which may be considerably lengthened by unfavourable factors such as cold. It would therefore appear that the action of acetylene is similar to that of ethylene.

Experiments in the use of acetylene in the artificial ripening of fruits were undertaken in 1933-34 by the Division of Fruit and Vegetable Crops and Diseases, Bureau of Plant Industry, United States Department of Agriculture (5). The gas used was commercial acetylene containing impurity in the form of a small percentage of ethylene. Experiments were made with several varieties of oranges, grapefruits and lemons, picked from various parts of the trees; varying conditions were created in the colouring chambers, parallel tests being made in each case with ethylene. In some cases practically no change was made in the atmosphere within the chambers while in others a continuous forced circulation of air was maintained. The gas was produced by calcium carbide and introduced intermittently into some of the chambers, while in others the flow of gas was constant. In the first experiments, the proportion of acetylene in relation to air was about 1/1,000,000, a quantity which did not result in destruction of the chlorophyll of the various varieties used for the experiment, while in the case of ethylene this proportion was very efficacious; one of the first observations to be made, therefore, was that the minimum amount of acetylene required to cause the green pigment to disappear was greater than the quantity of ethylene necessary for the same purpose. It was also observed that delicate fruits, such as unripe tangerines, were not very liable to « scald » (a physiological disease in which the skin of the fruit becomes scorched), when treated with acetylene in a concentration similar to that adopted for ethylene in commercial artificial ripening, while the same fruit, when treated with ethylene, became discoloured in an unsatisfactory manner, proving that in this particular case the action of acetylene is preferable.

A study was also made of the keeping qualities of the fruits, some of which were subjected to very severe tests; on leaving the colouring chamber they were placed in a storeroom at a temperature of 21° C.; the fruit was then examined twice weekly for a month. The results are contained in the following table.

It will be seen from the table that both treatments affected the keeping quality of the fruits, but that in this respect acetylene is less harmful, more days elapsing before the fruit treated with this gas reached a given degree of deterioration than in the case of ethylene treatment; this observation is important since it allows the duration of shipment to be extended by a few days.

TABLE I. — *Percentage of spoilt fruit after treatment with ethylene and acetylene and storage at 21° C.*



In Florida the treatment is generally stopped before the chlorophyll has entirely disappeared because, once the chlorophyll begins to disappear, the process continues after the fruit has been removed from the colouring chambers.

In 1936 the «R. Stazione Chimica-Agraria Sperimentale» at Turin undertook a series of studies (6) on the artificial ripening of oranges, lemons, bananas and tomatoes with varying types of gas including chemically pure acetylene. Below are given the results obtained with this gas. The acetylene was mixed with air in the proportion of two to twenty volumes per thousand volumes of air. The gas was changed every 24 hours.

(a) BANANAS.

The proportion adopted was two volumes of gas per thousand of air; the temperature fluctuated between 11.5° C. and 12.5° C., and the humidity was between 90 and 95 per cent.

* Tec. e Ingi.

After 11 days all the bananas treated had become yellow while the control fruits were still green; after 20 days the treated fruit had lost 7.7 per cent. in weight while the controls had lost 7 per cent. Chemical analysis of the fruit yielded the following results:

TABLE II. — *Chemical analysis of the pulp during treatment.*

Treatment	Acidity expressed in cc. of KOH N/10 %	Reducing sugars calculated as invert sugar %	Non-reducing sugars calculated as saccharose %	Total sugars %
Green bananas (beginning of exp.) .	10.0	0.77	2.42	3.19
Yellowed bananas (11th. day):				
with acetylene	33.7	7.65	2.37	10.02
with ethylene	43.0	10.64	3.18	13.82
with ordinary air	15.0	1.22	3.30	4.52
Golden yellow bananas (18th. day):				
with acetylene	52.2	5.50	10.89	16.39
with ethylene	55.0	6.51	10.13	16.64
with ordinary air	47.5	5.07	10.45	15.52

These results show that acetylene not only accelerates the change in colour, but also affects the evolution of the organic acids and the formation of compound sugars. The action of acetylene, however, does not appear to be so satisfactory as that of ethylene, since it was observed that after the eleventh day the total sugar content of fruit treated with ethylene is 3.8 per cent. higher than that of acetylene treated fruit.

(b) TOMATOES.

Acetylene was mixed with air in the proportion of 2‰, the temperature being kept between 17 and 19° C., and the relative humidity at 90 per cent. On the twelfth day one third of the treated tomatoes had taken on a red tinge, while the control fruits were still green; on the 28th. day all the treated fruit was bright red, while the control fruit was still pale yellow. Loss of weight was 3.5 per cent. in the fruit treated with acetylene, and 5.8 per cent. in the control fruits. Analysis of the product during treatment gave the following results.

Although the difference between the various series of experiments were not great, it was observed that such differences are to be found in relation to the organic acids and compound sugars; the difference in colouring was very distinct, fruits exposed to the ordinary air were still yellow when those treated with acetylene were red.

For three years (1936-37-38) the Marrakesh Experiment Station (7) in Morocco has been studying artificial colouring, with acetylene, and has come to the following conclusions: "Artificial colouring with acetylene gas is an economic operation making it possible to put fruit on the market ten days before

TABLE III. — *Chemical analysis of the pulp during treatment.*

Treatment	Acidity expressed in cc. of KOH N/10 %	Reducing sugars calculated as invert sugar %	Non-reducing sugar calculated as saccharose %	Total sugars %
Green tomatoes (beginning of the experiment)	41.6	1.64	0.07	1.71
Tomatoes partly red (14th day):				
with acetylene	66.8	1.88	traces	1.88
with ethylene	66.4	1.90	0.22	2.12
with ordinary air	72.1	1.85	0.07	1.92
Tomatoes entirely red (28th day):				
with acetylene	67.3	1.97	traces	1.97
with ethylene	67.0	2.00	0.20	2.20
with ordinary air	73.1	1.73	0.07	1.80

the usual time of commercial ripening without affecting its taste or the intrinsic varietal qualities. Success is obtained by adopting the following principles:

- (1) only fruit which is already $\frac{1}{3}$ ripe should be picked;
- (2) picked fruit must show no trace of moisture; each drop of dew leaves a green mark;
- (3) excess of carbide harms the taste of the fruit and does not stimulate colouring;
- (4) the room must be aired three or four times a day in order to prevent the development of cryptogamic diseases.

Results of analysis of artificially coloured fruits are given below:

TABLE IV. — *Ratio of total soluble acid compounds.*

Date when sample was taken	Soluble extract %			Acidity %			Ratio of acid extract		
	20/10	30/10	20/11	20/10	30/10	20/11	20/10	30/10	20/11
Artificially coloured fruit	11.8	12.2		1.21	1.06		$\frac{9.7}{1}$	$\frac{11.5}{1}$	
Control fruit	12	12		1.10	1.07		$\frac{10}{1}$	$\frac{11.2}{1}$	
Naturally ripened fruit			13			0.91			—

Quite recently in 1938 experiments in artificial ripening by treatment with acetylene were carried out by D. J. DREYER, Senior Fruit Inspector, of the Union of South Africa (8). The fruit treated was the Kelsey plum, of Japanese origin; these plums do not ripen readily after picking, even if the fruit has already reached the ordinary temperature. After treatment with acetylene,

however, the transformation of the fruit was so striking that a few details on the conditions under which the experiment was carried out will be of interest. The typical treatment consisted of exposing newly picked Kelsey plums to an atmosphere containing about 1 per cent. acetylene for about 24 hours at a temperature of 21° C. and then to store them in ordinary air, kept at a temperature of 21° C. After five days the fruit, which at the outset was entirely green, or else green with a reddish tinge, had become perfectly ripe; the plums were entirely red in colour and were sweet and pleasant in flavour. The importance of the treatment lies mainly in the regularity with which good ripening was obtained, showing a definite contrast with the irregular ripening of the untreated fruit; in fact, five days after treatment, only 11 per cent. of the control fruits showed normal ripening and 13 per cent. after 9 days; after the fifteenth day the untreated fruit which had not ripened withered. The variation in acidity and sugar content of the fruits ripened by treatment with acetylene appears to be normal, as may be seen from the following table:

TABLE V. — *Variation in acidity and sugar content of Kelsey plums treated with acetylene.*

Treatment	Solid elements in solution %	Malic acid %	Ratio between solid elements in solution and acidity
Unripe fruit	15.2	0.91	16.7
Treated fruit	14.2	0.15	92.8
Naturally ripened fruit	16.1	0.14	111.8

Action of acetylene; advantages and disadvantages as compared with ethylene.

On the basis of recent experiments described above, it may be affirmed that the effects of acetylene are similar to those of ethylene; one thing is certain; *i. e.*, that this gas has a selective action on the chlorophyll which is transformed into a colourless pigment allowing carotin and other pigments (Lycopin) characteristic of ripe fruit to make their appearance.

This alteration in colour is accompanied by various internal transformations: hydrolysis of the starchy matter, softening of the cellular walls, increase in rate of respiration, reduction of tannins, and an increase in the acidity of certain fruits (tomatoes). Acetylene treatment has a tendency to shorten the period of low activity which is generally to be observed at the outset of the ripening process and which is often considerably prolonged by unfavourable conditions, such as frost. A comparison of the two methods reveals certain differences: when acetylene is introduced into the colouring chambers in the same proportion as ethylene, the green pigment of the fruit does not disappear so rapidly and, in especially difficult cases, the disappearance is very much slower. If identical results are to be obtained, the proportion of acetylene must be much greater. These differences are illustrated in the table given below.

TABLE VI. — *Percentage of complete colouring in certain fruits before and after treatment with acetylene and ethylene (5).*

Fruit	Acetylene		Ethylene	
	Before	After	Before	After
Oranges	64	83	63	88
Grapefruits	48	89	48	90
« Temple » oranges	38	72	39	78

Both treatments injure the keeping qualities of fruits but acetylene affects them to a lesser degree and while the advantages and disadvantages of the two gases are more or less evenly balanced from the standpoint of their effects upon the fruit, the same cannot be said from the economic and practical aspects; acetylene is less expensive than ethylene and can be produced by the grower himself from calcium carbide, although it can also be obtained commercially in metal containers; the plant for the production of gas from calcium carbide is simpler and cheaper as regulators are not required.

One of the disadvantages of acetylene, however, is its disagreeable odour which, according to certain workers, (HARVEY (3), RAIMUND H. MARLOTH (9), imparts a disagreeable flavour to the fruit treated; it may even be toxic and may also be the cause of headache among the staff employed in the colouring chambers. Some authors, including RAIMUND H. MARLOTH, of the Horticultural Research Station at Nelspruit in the Union of South Africa, even advise against its use for the following reasons:

(a) mixed with air it is more dangerous than ethylene because of its greater tendency to explode;

(b) although cheaper, acetylene is not economical, since at least three times as much acetylene as ethylene is required to colour the same amount of fruit;

(c) finally, the above-mentioned author, supported by DENNY (1) attributes the efficacy of acetylene solely to the amount of impurity in the gas and, since the content of impurities may be very variable, it is impossible to know whether the gas introduced into the chambers will be too active or not active enough.

These objections are denied by others; though there is slightly more danger of explosion with acetylene, still in the proportions in which this gas is used, this danger is not very serious, unless a flame is brought near the point at which the gas is introduced into the colouring chamber.

Suitable concentrations vary considerably with the different varieties of fruits. M. D. J. DREYER (8), experimenting with Kelsey plums, obtained good results with a high concentration: 1 per cent. maintained for 24 hours, but this would appear to be an exceptional case. As a general rule, concentrations are much weaker: from 1‰ to 1‰ to blanch celery, 2‰ for colouring oranges, lemons and tomatoes; these proportions are comparable to those used in the case of ethylene treatment.

Differences in action showing the superiority of ethylene are only observed in the case of very weak concentrations; at a concentration of about one million volumes, acetylene is not yet active, whereas ethylene is already sufficiently active to cause the chlorophyll to disappear from certain fruits (oranges, grapefruits, etc.).

The statement that the action of the gas is solely due to the proportion of impurities in it is definitely denied by some research workers: R. H. HARTSHORN (4), when studying the effects of acetylene on the ripening of bananas in 1931, found that these effects were really due to the acetylene and not to the ammonia or other impurities often contained in this gas, since it had been purified prior to use; this purification also removed every trace of ethylene. More recently, in 1936, A. ZAVANAJU, of the « R. Stazione Chimica-Agraria Sperimentale » at Turin, carried out his experiments with pure acetylene prepared in the laboratory from calcium carbide and brought to the point of chemical purity. As we have seen, the results of these experiments establish clearly that pure acetylene is efficacious in artificial ripening. There are therefore two opposing theories, on the one hand, that propounded by R. H. MARLOTH and F. E. DENNY, according to whom the impurities contained in the gas are alone responsible for the increase in the rate of ripening; on the other, the theory of R. H. HARTSHORN and A. ZAVANAJU, who state that it is the acetylene alone which is efficacious. Further study of the question is necessary to decide this controversy. In any case, one thing is certain, *i. e.*, that acetylene as manufactured from calcium carbide or as purchased commercially in metal containers, increases the ripening rate of fruits; this is the important point for the user.

The negative results obtained with pure acetylene by DENNY in 1924 and by R. H. MARLOTH in 1935 may have been due to other causes, in particular, to a lack of potash. According to WLODECK and BONING (10), juices, squeezed from fruits picked from plants suffering from a lack of potash, show a higher pH and are therefore more alkaline than those of fruits picked from normally nourished plants; another phenomenon is that these plants are especially rich in chlorophyll which is, however, not found in its usual form, but attached to particles of albumen, especially on the surface. REMY (11) has shown how the chlorophyll in plants lacking in potash does not dissolve in alcohol as easily as in the case of normal plants. If fruit from plants poor in potash is treated with acetylene (e. g. tomatoes), the chlorophyll is not entirely destroyed, but is still present in part and prevents the appearance of the typical red colour. The reason must be either that these fruits contain a relatively large quantity of chlorophyll, or that the composition of this chlorophyll is different from the normal. The pigment exists in those parts of the fruit containing least potash. These are the oldest parts of the fruit and include the regions surrounding the peduncle, whence the largest quantities of potash are directed towards the newer tissues. The observation that colouring is less uniform in certain fruits, and the fact that sometimes parts of perfectly ripe fruit remain green, support this thesis. It is thus probable that certain parts remain green as a direct consequence of lack of potash.

Material and Methods employed in the treatment.

The same material is used in acetylene treatment as in the case of ethylene treatment: a room for the production of the gas, colouring chambers, etc.; the gas can also be produced in the colouring chamber; one pound of calcium carbide produces about 145 lb. of gas. The exact quantity of calcium carbide to be used is determined by the size of the room, its water-tightness and the ratio of volumes of gas and air with which it is desired to treat the fruit; this ratio is variable, but the average appears to be, roughly speaking, between 2 and 4 per cent.; thus, for the artificial colouring of oranges, 28 grams of calcium carbide per 2000 litres of air are more than sufficient. The following table indicates the proportions which have given the best results in orange colouring in Queensland (12):

TABLE VII. — *Optimum proportions of calcium carbide for the artificial colouring of oranges.*

Cubic contents of chambers in litres	Number of one-bushel cases (36 litres)	Volume of air after introduction of gas (in litres)	Quantity of calcium carbide in grams
5,400	40	4,050	56
5,400	20	4,725	65
5,400	10	5,062	70

The simplest method of production consists in pouring the calcium carbide directly into a bucket of water placed in the colouring chamber; by this method, however, the gas necessary for filling the chamber is obtained in a single operation, and it seems better to slake the carbide slowly, and gradually. As in the case of ethylene treatment, the rooms should be aired at least once every 24 hours.

The Marrakesh Experiment Station (7) has worked out a very simple method of artificial colouring, which will be of interest to fruit growers. It has been used for citrus fruits, but could be used equally well for other fruits, by altering the gas concentration and the duration of treatment when necessary.

"The fruit is picked when every trace of dew has disappeared. There is a risk of deterioration during treatment if the fruit is moist, and each drop of dew leaves a green spot on the ripe fruit. The fruit is placed on shelves in the colouring room, measuring be 2 m. \times 3 m. \times 2 m.; these dimensions vary with the amount of fruit to be treated. The floor should be sprinkled with water in order to maintain the relative humidity between 90 and 95 per cent. to prevent the fruit from withering, as acetylene gas dries the atmosphere.

"The carbide is placed in lamps from which the burners have been removed to facilitate the flow of gas. The quantity of carbide is 25 grams per cubic metre; too much carbide may give the fruit a very disagreeable alliaceous flavour without in any way accelerating the ripening. To avoid mould, which might result from the humidity of the atmosphere, the rooms should be aired every four or five hours by opening the door for half an hour to change the air; the lamps should then be refilled and the door closed".

* * *

A rather specialized use of acetylene in fruit-growing, which may, however, be considered with what has been said above since the purpose is the same, is that followed in the cultivation of pineapples, especially in Queensland and the Hawaiian Islands. It had long been known that early flowering of pineapples could be stimulated by exposing the plants to the action of certain gases for 12 or 24 hours. Research work carried out in Queensland (13) shows that plants which would normally flower in February and March, when treated with acetylene, flower in October and November, and that consequently the fruit ripens by March, April and May, *i. e.*, at the time when climatic conditions are most favourable in that region. The method consists of spraying the plants with acetylene saturated water between September and March. Flowering is thus stimulated and takes place from 7 to 8 weeks after treatment.

It would be interesting to study whether this method, by which it is possible to ripen fruit at a better season and to space production, could not be adapted to other varieties of fruit.

Conclusion.

Although acetylene gas has not been used as long as ethylene, and although experiments with the former gas have so far been made on a very limited numbers of fruits at different stages of ripening, these experiments suffice to justify its introduction into commercial practice for certain fruits. Before recommending this treatment for general use on the same basis as ethylene, however, it would be advisable to continue research work on other varieties of fruits.

D. KALTENBACH.

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SOME LONCHOCARPUS SPECIES, ROTENONE YIELDING PLANTS OF SOUTH AMERICA (*)

I. — Botany — Cultivation — Producing Countries.

INTRODUCTION.

For a long time past, native inhabitants of tropical regions have utilized as fish poisons the juice of certain plants that have toxic properties. In the Amazon region, for example, and generally in Central and South America, the poisoning of small streams is still commonly practised, by means of plants, trees, shrubs, lianas, grasses, etc., belonging to different natural families. The toxic properties of these plants are due to various substances and in particular to alkaloids, glucosides, etc. The active principle of one of these plants (*Derris*), which yields a very strong fish poison, was isolated for the first time in Japan, and the name of rotenone finally given to it. Later, in 1929, CLARK isolated the same principle from the roots of different species of *Lonchocarpus* obtained from Central and South America. Rotenone soon acquired great importance as an agricultural insecticide and this gave rise to a careful survey of the plant species capable of supplying this substance in adequate quantities. In 1933 some Americans settled in Brazil to survey the extent of plants supplying rotenone in the forests of the Amazon. The purpose of this article is to report briefly on the results obtained up to now in regard to American rotenone-yielding plants.

BOTANICAL SPECIES.

The genus *Lonchocarpus* is abundantly represented in Central America, in Mexico, in the tropical regions of South America and in the West Indies. It is also found in South Africa and in Equatorial Africa, as well as in Madagascar and in Australia. The majority of the species found in Central America are however not found elsewhere.

All these fish-poisoning or fish-stupefying are known by the native populations of the countries of South America under various names. For example, these species are known in Peru under the generic term of "cubé", in Brazil as "timbó", in British Guiana, as "haiari", in Dutch Guiana as "nekoe", in French Guiana as "nicou" and in all the countries of South America as "barbasco". These same terms may further be applied to different fish-

(*) This article is a sequel to and supplements that on Cultivation of *Derris* in the Far East (see this *Bulletin*, No. 1, January 1937, pp. 1-12). The Section of Tropical Agriculture of the International Institute of Agriculture, in view of the increasing importance of the cultivation of insecticide plants yielding rotenone, which are all tropical crops, has decided to prepare a general survey of the problems connected with this new production and of the results already obtained.

poisoning plants in different countries. Thus the term "cubé", which in Peru is used to designate only plants belonging to the genus *Lonchocarpus*, is used in other countries to designate fish-poisoning plants belonging to another genus of the family *Leguminosae* (e. g., *Tephrosia*) or even belonging to another family. Hence it is essential to define these terms as precisely as possible. For this purpose special use will be made of results published by KILLIP and SMITH and by ROARK, as these writers after patient investigation have been able to determine beyond dispute the species and varieties indicated under a given native name. It is impossible to give here the full list drawn up by these investigators; a brief note will be given only on the principal plants.

(a) BARBASCO. — This is the term generally employed in the Spanish speaking countries to designate fish-poisoning plants. The word is derived, it appears, from *Verbascum*, the plant genus formerly utilised in Spain and in other European countries for stupefying or poisoning fish. According to KILLIP and SMITH, in Central and South America this term is especially applied to two species of *Lonchocarpus*: viz., *L. guaricensis* and *L. nicou*.

(b) CUBÉ. — The term cubé is a Peruvian word which, in Peru, designates all species of *Lonchocarpus* which are ichthyotoxic and in particular *Lonchocarpus nicou*; in other regions, it designates all plants used for poisoning fish.

(c) HAIARI. — The term haiari is employed in British Guiana for designating certain species of *Lonchocarpus*, including *L. nicou*. Various kinds of haiari are distinguished by the natives, viz., the "white haiari", the "black", the "red", the "bastard haiari" and the "haiar-balli". According to KILLIP and SMITH, the two first correspond to *L. nicou* and the two last to *L. densiflorus*. In addition *L. variflorus* is regarded as a variety of "black haiari"; it is known more often under the name of "Faia-fai-noroko". It has been noted besides that a variety recently gathered along the river Berbice and formerly considered as being "black haiari" is in fact different, and it is possible that it corresponds to *L. Chrysophyllus*.

(d) NEKOE. — This term is used in Dutch Guiana to designate especially *L. nicou* and *L. Chrysophyllus*. The nekoes are also known in Dutch Guiana under the name of tienghihoede, tetei, touw and hajari.

(e) NICOU. — This term is used in French Guiana, and in the French Colonies in general, to designate *L. nicou*. This species is also known as in Guiana under the name of intoxicating wood.

(f) TIMBÓ. — The greater part of the fish poisoning species are known under the name of timbó in Brazil. The classification still remains uncertain; the principal Brazilian timbós will only be mentioned.

1. "Timbó legítimo" or "macaquinho" which seems really to be the *Robinia nicou* of AUBLET, or *L. nicou*. This species is found in Peru and also on the Lower Amazon, always close to inhabited sites and not in the completely wild state.

2. "Timbó vermelho" or "Timbó urucú" corresponding to *L. urucú*.

The designation of *T. urucú* is used especially in the Lower Amazon (Gurupá) region as well as in the Rio Xingu; that of *T. vermelho* is used in the regions lying between the Amazon and the Pará.

In addition to these two kinds of timbós, which are the richest in rotenone, the following may be mentioned: the «timbó venenoso» of Pará (*L. floribundus*), which is found in all the Amazon region and is said to contain a toxic glucoside, timboine, the «Timbó grande» or «common Timbó» found especially in the region of the Rio Tapajoz; the «Timbó páo», of the region of the Rio Acará.

All these timbós have a more or less high rotenone content, they all belong to the genus *Lonchocarpus*, they are most often found in the form of lianas which may be confused with other lianas which have no toxic qualities. Finally the confusion is increased by the fact that this same name of timbó is given to a number of other plants belonging to different genera and even to different families. A detailed study of all these rotenone yielding plants in the Amazon region has still to be made.

BOTANICAL DESCRIPTION OF CERTAIN LONCHOCARPUS SPECIES.

The first botanical description of a «timbó» belonging to the genus *Lonchocarpus* was made by F. AUBLET in 1775. This botanist gave the name of *Robinia nicou* to the plant he described; later this name was changed to *Lonchocarpus nicou* (Aubl.) Benth. Lately the botanist E. P. KILLIP of Washington has described two new species of timbós which are respectively *Lonchocarpus urucú* and *L. floribundus*. Finally the latest surveys made in the different parts of the Basin of the Amazon have proved that at least six species of *Lonchocarpus* must exist with roots of more or less high rotenone content. The identification of these species is, as already noted, very difficult, as certain species much resemble some plants of the genus *Derris*. Guidance in botanical investigations may however be of gained from the important fact that *Lonchocarpus* spp. are not met with in the primary virgin forests but only near dwellings or on the site of former plantations or long deserted crops. From a purely practical point of view, the distinctive characteristics of the different species can be quickly ascertained by an examination of the habit of growth of the plant, leaves, flowers, branches and roots.

The descriptions of the principal species are as follows:

(a) *Lonchocarpus nicou* (Aubl.) Benth.

According to KILLIP and SMITH, this is a bush or small tree which may attain the height of 3 metres; the diameter of the principal stem is from 4 to 8 cm.; the branches spring from near the top of the stem and the plant may climb over other plants in the neighbourhood up to a height of some ten metres. The leaves are alternate, compound imparipinnate, the base of the main leaf stalk and the petioles are thickened; the opposed leaflets (from 2 to 4 pairs, usually 3) are oblong, occasionally oblong lanceolate or oblong oblanceolate, from 12 to 25 cm. long and from 4 to 10 cm. broad; they are acuminate at the apex, subacute or sub-rotund at the base, entire, coriaceous (leathery) or

sub-coriaceous; their upper surface is dark green, somewhat glossy and very glabrous, the underside is paler, sometimes glaucous, usually covered with thick reddish or golden brown hairs; the ribbing is pennate, the central rib is sometimes depressed on the upper side and prominent on the lower; the lateral ribs, from 7 to 10 on each side, point up the leaf and turn over towards the margin.

AUBLET describes the flower as follows: *Calix; perianthium monophyllum, quinquedentatum. Corolla papilionacea, purpurea, vexillo amplo, erecto. Pericarpium; legumen longum acutum, gibbosum, glabrum, rufescens, uniloculare, bivalve. Semina tria aut quatuor, subrotunda, compressa, marginibus valvarum affixa.*

KILLIP and SMITH in their description do not speak of the flowers or of the fruit, probably because the plant flowers only after many years of growth and the plants examined by them were generally not more than 6 or 7 years old.

(b) *Lonchocarpus Urucú* Killip.

The *Lonchocarpus Urucú* is found under the form of a great liana, almost of bush habit. The underside of the leaves and of the flowers is covered with rust-coloured hairs; the leaves are compound, formed of from 3 to 4 pairs of leaflets, opposite and with a terminal leaflet; the leaflets are oblong or elliptical, rounded at the base and ending abruptly in a short point; their length is from 7 to 17 cm. and the breadth from 3.5 to 8 cm.; the upper surface of the leaves is glabrous. Every part of the blade of the leaflets is traversed by 8 to 10 ribs. The inflorescence is axillar, lateral, and consists of branched panicles, compact; the flowers are small, grouped, and red in colour, 13 by 5.5 mm. The fruits are flattened oblong pods, from 4.5 to 8.5 cm. long by 2.5 to 3 cm. broad.

(c) *Lonchocarpus floribundus* (Benth).

Lonchocarpus floribundus is a large liana with a large number of bright red flowers. The branching shoots, the leaf stalks and the inflorescences are glabrous; the compound leaves have long leaf stalks, and 2 or 3 pairs of opposed leaflets with or without an odd terminal leaflet; the leaflets are petiolate, oval or elliptical the odd leaflet is ob-oval; all the leaflets end in a blunted point or mucronate apex.

The leaves are glabrous on the upper side and of a somewhat olive colour, on the under side they are covered with dark or rust coloured hairs; the length is 5.5 to 12 cm. and breadth 3 to 7 cm. The inflorescence is long, lateral and terminal, never compact, branched: the flowers are grouped, stalked, small (1 cm. by 6 mm.), calyx in form of standard, with hairy coat; the fruit is a smooth, flattened pod, 6 to 7 cm. long by 2 broad; it contains one seed only.

GEOGRAPHICAL DISTRIBUTION.

The species of *Lonchocarpus* having insecticide properties are chiefly found in the Amazon basin and at the base of the first foothills of the surrounding mountains, in a region, that is, extending from 3° Lat. N. to 15° Lat. S. This

region is bordered on the west by the Andes and plentifully watered by innumerable streams.

In this zone two very different topographical regions are to be distinguished, namely:

- (a) the "varzeas" or plains periodically inundated by floods;
- (b) the "terra firma" which lies above the highest level reached by the floods.

Actually the whole of the Amazon basin is at a low altitude except for certain areas which rise to 150 or 200 metres. Even the "terra firma" areas rarely exceed an altitude of some thirty metres above the flooded plain. It is mainly on the well drained portions of these lands, and of those lying at the base of the foothills of the ranges surrounding the Basin, that species of *Lonchocarpus* are found in the wild state.

According to observations made by explorers, *Lonchocarpus nicon* is found in Peru in a zone situated between 12° 50' Lat. S. and the Equator, in mountainous or tropical areas including the Departments of Loreto, San Martín, Amazonas, Junín, Ayacucho, Cusco, Madre de Dios and Apurímac. KILLIP and SMITH also mention the existence of cubé in the department of Huancayo; WEBERBAUR found this species in the region of Moyobamba, in the valley of Monzón, near Cachicoto and in other localities of the eastern part of Peru. In 1922 W. J. DENNIS found cubé plants on the other side of the Andes, in a mountainous region. Four well marked zones may thus be established in Peru where cubé is to be found either cultivated or growing in forests, as follows:

(a) The region of Madre de Dios. In this region cubé is found at Maldonado at an altitude of 225 metres above the level of the sea;

(b) The region of Ucayali. This region is well watered; cubé is found mainly in the locality of Aina in the mountains of Huanta, in the localities of Pedregal, Santa Ana (1081 metres above sea level) and of Quellouno (695 metres) in the region of Urubamba; of Cahumapana on the Pichis river; of Pucallpa on the Bajo Ucayali; in the valley of the Aguaytia (in the wild state) and finally at Contamana (134 metres), and along the streams Sarayacu and Santa Catalina (in the cultivated state).

(c) The region of Huallaga. Plantations of cubé are found in the Chinchao mountains and in the localities of Monzón and of Cachicoto, at an altitude of 617 metres. They are also found at Tocache (512 metres) on the stream of the same name, at Pachiza and at Saposoa (308 metres).

In the valley of the Mayo, cubé is found in the neighbourhood of Moyobamba (866 metres) and of Tarapoto (374 metres). On the Huallaga cubé plants are found at Chasuta (260 metres) and at Yurimaguas (170 metres); the plant is also found at Santa Cruz and at Lagunas.

(d) The region of Marañón. The Marañón is a river which rises in the Cordillera of Huaihash, between the departments of Huánuco and Junín. Cubé is found on the right bank of the river at Jeberos and at San Antonio. On the left bank plantations are found at Jaén (740 metres); at Puerto Pardo, at Baranca and on the Pastaza.

It will be seen from this brief survey that cubé is a plant which occurs in the wild state in an extensive zone of Peru and in the cultivated state in many localities. The principal centres for supply of the roots are situated in the region of Huanta in the central part of Peru.

In Brazil, the different kinds of timbó are nowhere cultivated; all that is done is to utilise those which grow wild in the forest. ROARK considers that the different kinds of timbó in Brazil are met with in the regions situated at an altitude below 900 metres. The larger proportion of the *Lonchocarpus* roots exported from Brazil come from the States of Pará and Amazonas in the North.

CLIMATE.

In comparison with many tropical countries, the annual rainfall in the Amazon Basin cannot be considered high. The torrential downpours common in many Equatorial regions are quite rare. The heaviest annual precipitations fall on the western edge of the Basin in Peru and Bolivia. According to WILLE, *Lonchocarpus* spp. require fairly heavy rain preferably evenly throughout the year. In the region of the Montaña, the rainy season lasts from October to May and is at its height from January to April; the lighter rains are in July and August. During the wet season, rain falls regularly during the night, and at daybreak the ground is covered with mist, which as a rule quickly disperses and the sun shines till 2 or 3 p.m., when the violent downpours begin again. In this region the annual precipitation always exceeds 80 inches (2,032 mm.).

Very heavy and well distributed rains occur also in the neighbourhood of Iquitos (Peru), and annual precipitations have been noted there to a depth of 2,500 mm. The rainy period also lasts from October to May.

In the State of Pará, Brazil, the rainfall is approximately the same as that of the Peruvian regions just described. It would appear, however, that the rains are more seasonal and somewhat less in quantity..

From the above summary of weather conditions it may be gathered that the rainfall requirements of *Lonchocarpus* vary somewhat according to species, but that in any case these plants require a hot and wet climate.

SOILS.

Examining the ground where *Lonchocarpus* grows wild, it is found that it adapts itself freely to any kind of soil. It however prefers light, sandy, permeable soils, such as occur along the streams of the Mojitana in Peru. Root development and gathering appear to be made easier by a permeable soil. Well washed and gravelly land is unsuitable. The general topography of the ground is also important; plantations should not be made on the banks of streams which periodically overflow.

As regards the chemical composition of the soil, recent research shows that *Lonchocarpus* does best on acid soils rich in humus.

CULTIVATION.

In the principal producing countries, *Lonchocarpus* spp. are grown on plantations of varying size, in preference close to dwellings. KILLIP and SMITH who visited Peru a short time before the powder of *Lonchocarpus* became an article of trade, stated that the plantations were of very varying size, from small crops of 25 to 100 plants enough to cover the needs of one family, to large plantations of more than 10,000 plants enough to meet the requirements of the whole neighbourhood.

(a) *Methods of propagation.* — Propagation by cuttings is generally adopted in all the countries where cultivation is practised. The native method is simply that of burying in the soil to the depth of some ten centimetres a piece of stem about thirty centimetres long. La Molina Experiment Station (Peru) recommends the adoption of the following method for establishing a new plantation:

"Cuttings should be taken on the main stem, as near as possible to the root collar and if possible with traces of attached roots. Cuttings should be about 30 cm. long, with two or three nodes; they should be placed in the ground at an angle of 45°, leaving one node out of the ground. Plants should be 1.50 m. apart in every direction. In Peru cuttings should be made in September or October. The growth is rapid; as a rule at the end of the first year the height attained is one metre, at the end of 2 years, 1.80 m. and at three years, 2.50 m. As gathering cannot take place till the end of 3 or 4 years, the cubé plants are planted in association with yuccask, pineapples or rice."

It is of interest to note an attempt at layering *Lonchocarpus nicon* which was entirely successful. The trial was made in the Botanic Garden of Los Baños, Philippines Is.; the object was to effect a rapid multiplication of young nursery plants of *Lonchocarpus* which had been sent from Peru and were not growing well. The procedure was as follows: the branches chosen were stripped of their bark at a convenient point to a length of about 2 cm. The cambium layer thus exposed was scratched with a pruning knife to prevent cicatrization of the wound during the period of the formation of the callus. A month later when the callus was well formed, the scar was wrapped round with a wad of coir fibre containing equal parts of garden soil and horse manure: by a suitable device, the humidity most favourable to the formation of roots was maintained at this point. At the end of a month and a half some roots could be observed, which a week afterwards were so far developed that the branch was severed, and was then planted in a pot, leaving the wad of coir fibre adhering. Some weeks later strong and healthy rooting took place.

This experiment, made quite recently (in 1937), shows that propagation of cubé plants can be easily obtained by layering, whenever there is not enough material for cuttings to be taken.

(b) *Shading.* — The influence of shade plants on the growth of *Lonchocarpus* spp. is not yet definitely known. Many writers maintain them to be shade-loving plants; the natural stands are found in thickets in the forests, in deserted and overgrown clearings, and less often in dense forest, usually near the edge.

Cultivated species of *Lonchocarpus* usually grow in open places. The plant being peculiarly sensitive to climatic changes, especially when young, it is advisable to plant it in association with other crops as, for example, cassava. Trials have shown that cubé crops grows better as a mixed than as a single crop.

(c) *Cultivation*. — The elimination of weeds is one of the first difficulties encountered in the growing of *Lonchocarpus*. Weeds can be kept under by planting intercalary crops, and this is a further reason for not growing cubé as a single crop.

(d) *Gathering*. — The roots are gathered at the end of the second year or in the course of the third or fourth years. Lifting of the roots may be done at any time of the year, but by preference when it is not raining, as the work is then easier and the roots taken up are cleaner. The rotenone content of the roots increases with the age up to about the fifth year.

(e) *Yields*. — Few exact figures are available as a basis for estimation of yields. KILLIP and SMITH estimate that the average weight of the roots of a plant two years old is about one and a half kg. in the fresh state. On drying, the root loses about 42 per cent. of its weight. WILLE, moreover, considers that when the roots are gathered in the course of the third or fourth year, about 2 kg. of fresh material can be obtained per plant. Naturally the root development depends on the richness of the soil; on sandy soils the roots may attain a length of 1.5 metres. Writers are not in agreement on the density of plantations. KILLIP and SMITH reckon that from 4200 to 4400 plants per hectare may be grown. The Peruvian writers regard this as an exaggerated estimate and consider that not more than from 2200 to 2400 plants should be reckoned to the hectare. Taking this latter figure and calculating 2 kg. of roots per plant, a production of from 4400 to 4800 kg. of fresh roots per hectare is reached, yielding some 2,000 kg. of dried roots.

In Brazil, much higher yields are reported; actually according to information supplied to the Imperial Institute in London by the Commercial Attaché of Rio de Janeiro, the production of fresh roots of timbó plants three and a half years old was as much as 17.5 m. tons per ha. It will be seen that it is difficult at present to deduce a precise average from the facts known up to now.

DISEASES AND PETS.

Various insects and fungi are mentioned in the world bibliography on the subject as attacking cultivated or wild cubé plants. Mention will here be made only of *Aspidiotus articulatus* which, according to SEABRA, attacks the leaves and branches of a species of *Lonchocarpus*, and *Metoposoma porosum* Marshal, which bores the trunks of other Brazilian species of *Lonchocarpus*. Other pest that attack these plants in Brazil are *Diorchidium manaosense* P. Henn., *Endothiella lonchocarpicola* (P. Henne.) Theiss. and Syd., *Ophiodothella atromaculans* (P. Henn.) v. Hoehn. *Ravenelia lonchocarpi* Laght and Diet, and *Ravenelia bakerians* Syd.

Lonchocarpus nicou plants growing wild or cultivated in Peru are not, it seems, attacked either by insects or by fungi.

SURVEY OF THE EXPLOITATION OF LONCHOCARPUS SPP. IN THE PRINCIPAL PRODUCING COUNTRIES.

(a) *Peru*. — At present 90 per cent. of the world production of cubé roots come from the eastern part of Peru. The principal port for the export of the product is Iquitos on the Amazon. All the preceding notes on the cultivation are based on information from Peru and apply especially to that country; further remarks will be limited to some notes on the times for sowing and gathering of cubé in the different Peruvian districts.

TABLE I. — *Times of sowing and of gathering of Cubé in the various departments of Peru.*

(according to J. E. WILLE, J. Alcides OCAMPO, A. WEBERBAUER and D. SCHOFELD).

Department	Province	Districts	Sowing	Gathering
Loreto	Upper Amazon	Santa Cruz	March	—
		Other districts	May-July	May-August
	Lower Amazon	Parinari	—	—
		Pebas	All the year	All the year
	Ucayali	Other districts	May-July	May-August
		Sarayacu	January-February	—
San Martín		All the year	—	
San Martín ..	Huallaga	Pucallpa	All the year	All the year
		Other districts	May-July	May-August
		All districts	All the year	All the year
		All districts	All the year	All the year
Huánuco	Moyobamba	All districts	All the year	All the year
		All districts	All the year	All the year
		All districts	All the year	All the year
		Arancay	July-September	All the year
Huamalies	Huamalies	Monzón-Tingo-Maria	January-July	September
		Huánuco	Forest sown	Forest gathering
		Cholón and Huacrahucho	July-August	Nov.-Dec.
	Pachitea	Pozuzo and Pano	Forest sown	Forest gathering
		Pachitea	All the year	—
	Huancavelica	Angares	Marcas	Sept.-Nov.	April-June
Junín	Jauja	Satipo	—	—
Cuzco	Calcá	Lares	Sept.-Oct.	May-Aug.
	La Convención	Santa Ana	Sept.-Oct.	May-Aug.
Ayacucho ...	La Mar	Aina	—	—
		Kimpitiriki	—	—

The first scientific cultivation trials were undertaken towards 1934 at the La Molina Experiment Station; then, in 1935, at the Loreto Experiment Station. These trials showed that the best species was *Lonchocarpus nicou*, the rotenone content of the roots varying from 5 to 15 per cent., while that of the roots of other species is always lower. The increase in rotenone content appears to be in relation with the quality of the soil; in the course of experiments, a larger increase has been noted when the plants are growing in silico-clayey soils and

when the climate is not too humid. At the La Molina Agricultural Station, it has been observed also that plants sown as an intercalary crop do better than those grown without shading.

At the time of gathering, the roots have a water content which depends on the season and on the nature of the soil. In many cases the approximate limits of this moisture, calculated *a priori* by some observers, may be exceeded. Thus observation at the La Molina Experiment Station has shown that a root taken from a plant one and a half years old weighed a kilogramme at the time of gathering and only 575 grammes after it had been kept for 15 days in the open air in the shade. Other experiments have shown a much smaller decrease in weight, such as 500 grammes for an initial weight of 1800 grammes. In any case, the conclusion is that buyers of fresh roots will have to count on a loss of some 50 per cent. during drying.

So as to obviate all difficulties in the estimation of this loss, sales of roots in the dried state only are advised by the La Molina Experiment Station.

The Station also advises growers to utilize special stoves to secure adequate drying. For marketing, roots should be selected and graded according to their rotenone content; the low prices up to now paid are entirely due to the want of homogeneity in the material offered.

(b) *Brazil.*

The Brazilian timbós are especially abundant in the Pará region. The working of these is of the most primitive type, as these plants are seldom cultivated in the proper sense of the term. All that is done is to cut the young roots of the lianas on the natural stands and to transport them to the mills (factories).

The best species found is Timbó macaquinho (*Lonchocarpus nicon*). In experiments propagation by cuttings of this species has been found to be very successful and growth is rapid. The quantity of roots obtained is not so great as with other species, as for example the timbó urucú, but as the plants take less space, the number of stocks to the hectare can be increased so as to obtain a very satisfactory yield. The rotenone content of the roots is at a maximum in a plant from 2 to 2 ½ years old, when it is an erect shrub with no need of a support.

The roots of timbó macaquinho contain 6 to 12 per cent. of rotenone, a much higher content than the roots of *Derris elliptica*.

Cultivation trials have been made with other species, such as timbó vermelho (*L. Urucú*), timbó grande, etc., the rotenone content of the roots varying from 3 to 5.5 per cent.

All these trials show that to obtain a regular rotenone yield, the working of species dispersed in the forests is not enough, but it is essential to undertake systematic cultivation on a large scale. As the species for cultivation, timbó macaquinho should be chosen, not only because the rotenone content of the roots is very high, but also because the roots do not contain resins or colouring substances, and hence the process of extraction is simplified and losses avoided.

The roots after gathering are chopped into thin slices while still fresh, then placed in the stove and reduced to a very fine powder.

This treatment is mainly carried out at Belem (Brazil), where there are already half a dozen specialised factories.

Four commercial grades of timbós have been fixed by the General Department of Agriculture:

Grade 1: Roots of timbó macaquinho.

Grade 2: Roots of species of the type of timbó urucú.

Grade 3: Roots of the two species above mentioned.

Grade 4: Roots of various species of timbós.

Each grade includes three commercial types, viz.:

Grades 1 and 2. — *Good*: 90 per cent. of new roots belonging to the two classes, 3.5 cm. or more thick, in good preservation and clean. *Medium*: 65 per cent. of new roots in good preservation and clean, from 12 to 25 per cent. of mouldy and earth stained roots. — *Inferior*: 50 per cent. of new roots, in good preservation and clean, from 25 to 50 per cent. of mouldy earth-stained roots.

Grade 3. — *Good*: 50 per cent. of urucú and 50 per cent. of macaquinho: new roots, 3.5 cm. thick, in good preservation and clean. — *Medium*: 70 per cent. of urucú and 30 per cent. of macaquinho, new roots including 12 to 25 per cent. mouldy and earthstained. — *Inferior*: 80 per cent. of urucú and 20 per cent. of macaquinho, new roots 3.5 cm. thick including 25 to 50 per cent. of mouldy or earth stained roots.

Grade 4. — *Good*: up to 50 per cent. of macaquinho, new roots, 3.5 cm. thick, in good preservation and clean. — *Medium*: 30 per cent. of new macaquinho roots 3.5 cm. thick including from 12 to 25 per cent. mouldy and earth-stained roots. — *Inferior*: up to 25 per cent. of macaquinho, new roots, 3.5 cm. thick, including from 25 to 50 per cent. of mouldy or earth-stained roots.

(c) *British Guiana.*

Since 1929, "black" and "white haiari" have been cultivated on the experiment stations in the North-west district. At Horosoro, the plants have been grown with and without shading on lateritic soils; at the Wauna Station the same crops have grown, with and without shading, but on sandy soil. In both cases the shaded plantations consisted of secondary forest in which the undergrowth and smaller trees had been cut away. Propagation was easily effected by means of stem cuttings. It was soon clear that growth was more vigorous on sandy soil than on lateritic soil, and on shaded than on unshaded ground. At first the "black haiari" grew more slowly than the "white haiari", but at the end of three years, there was no longer any difference. The unshaded plantations were weeded during the first three or four years of growth.

Before these experiments, flowering had never been reported among the haiaris; in 1935 some plants of "white haiari" suddenly flowered on the non-shaded plantations at Wauna, and it was thus possible to identify this species as being *Lonchocarpus nicou*.

When the "black" and the "white haiari" are grown together it is easy to distinguish the two species. Actually the former has a very characteristic dark brown bark, and the leaflets tend to be a darker green than the leaflets of the other species. The hairy coat on the leaves of the "black haiari" is also thicker than with the "white haiari". Comparable leaflets belonging to these two species, grown under the same conditions, present several distinctive characteristics; on the other hand, considerable modifications with age and habitat take place in leaflets, and distinctions based on leaf characters may be a source of error. At Wauna, on the shaded plantations, spots often occur on the leaflets of the black variety which are never found on the other variety. This is a distinctive characteristic.

In the conditions of British Guiana, the growth of *Lonchocarpus* spp. is much slower than in Peru, where at the end of four years, the plants attain a height of about 5 metres. The plants grown at Wauna were only two metres high at the end of seven years. The differences observed in the habit and in the growth of *Lonchocarpus nicoi* growing under the conditions of British Guiana occur also - whatever may be the cause - in the rotenone content of the roots. The wild plants gathered in the forests of British Guiana have revealed, on analysis, a rotenone content not higher than 3 per cent., which is the minimum for the root to have marketable value: the cultivated plants have shown up to now an even lower content. Investigations are at present being carried on by the Department of Agriculture on the actual insecticide value of these roots and on the means of increasing this. Preliminary work done by the Division of Chemistry of this Department show that certain modifications must be made in the ordinary methods of determination of rotenone content when haiari roots are concerned. ROBINSON announces a new method of analysis which, in his opinion, yields more correct and satisfactory results than those obtained by the usual methods. None the less, the percentage of rotenone remains extremely low.

It has been thought that the application of lime might increase the rotenone content of the roots, and experiments have been made in pots, with a view to examining this aspect of the problem.

(d) *Dutch Guiana.*

Experimental cultivation has been undertaken of "black" and of "white haiari" at Demerara. The former species is shown to have the highest rotenone content.

(e) *French Guiana.*

Wild stands of *Lonchocarpus nicoi* were formerly to be found over the whole territory of the colony; it was in fact from a specimen coming from this colony that AUBLET was able to make the description of the inflorescence of *Lonchocarpus nicoi*. At that time (in 1775) he had given the plant the name of *Robinia nicoi*. Since then this plant seems to have gradually disappeared,

it is still however reported near the sources of the Maroni on the borders of the Itauy. Cultivation should be resumed, and this species could then undoubtedly take an important place in the economy of this colony.

(f) *Ecuador.*

According to available information, stands of *Lonchocarpus* exist in the eastern part of Ecuador. This plant is known under the name of timbó but does not enter into trade.

(g) *Nicaragua.*

A *Lonchocarpus* is found in Nicaragua, *L. latifolius*, H. B. K., known by the name of "pelljo de toro". This species occurs only in the wild state and often in localities difficult of access.

II. — Chemistry and Technology

The only part of the *Lonchocarpus* plant having commercial value is the root; the greater proportion of the active principles are in fact in the root.

(a) PREPARATION OF THE ROOTS.

The roots freshly gathered are put to dry under hangars well ventilated so as to prevent any diminution of their toxic quality from the direct action of the sun's rays and to avoid formation of fungi under the action of rain.

Before storing the roots, their water content must be reduced to less than 14 per cent.; for this at least three weeks of exposure in the hangars at ordinary temperature is necessary. By using special stoves for the drying process, the length of the operation may be reduced to three days, and a lower moisture content of roots is obtained by this process. The drying plant used consists of a furnace equipped with a system of pipes for the circulation of hot air, by which a temperature as near to 75° C. as possible is secured, this being the optimum temperature at which roots should be dried. It has been noticed that roots subjected for several hours to a temperature of 100° C. yield a powder of darker colour than that obtained from roots treated at the surrounding temperature.

As already said, the roots may be stored as soon as their moisture content is less than 14 per cent.; for their export without risk of attack by fungi, their water content should however be less than 10 per cent. Actually a Decree was enacted in Peru (Decreto Supremo of April 4 1933, Art. 3), prohibiting the export of cubé roots containing more than 10 per cent. of water. Good quality roots on arrival in the United States contain on an average less than 6 per cent. of water.

During transport by land or sea, the roots must always be protected from sunlight and from rain; tarpaulin is used for this purpose. It is usual to re-

move the large roots from a consignment and to leave only the thinner ones, so as to increase the rotenone content of the whole; it has been observed that the larger roots contain only 2 to 3 per cent. of rotenone, while the others easily contain 8 per cent. and more.

For export it is advisable to compress the roots in bales of 100 kilograms, using bale-presses as for cotton.

It is a disadvantage to export roots whole as it is impossible to take a sample representative of the consignments and to guarantee their content in rotenone and in total extract. Moreover manufacturers receiving roots pressed into bales are obliged to sort them out before sending them to the mill.

On the other hand, if roots are exported already milled, it is possible to obtain a homogeneous and less bulky mixture of which the rotenone content and total extract can be easily determined.

(b) APPEARANCE OF ROOTS.

A detailed description of cubé and timbó roots is given by MM. J. and M. CHEVALIER, and the following information is taken from these writers:

1. *Cubé roots*. — The surface of these roots is ridged with longitudinal furrows. On cutting they show a slightly brown cortex, 1 mm. thick, surrounding a lighter coloured xylem with well formed vascular tissue, visible to the naked eye. The medullary rays are clearly visible; the medulla is small and centrally placed. There are very few secondary roots which leave an elliptical scar. On breaking, the whole is fibrous and a mass of hardened fibres are seen on the broken edges. If plunged into water a quantity of starch is released; the roots tinge the water yellow and give off a distinct odour. If mashed, they seem at first sweet, then taste more and more acrid.

2. *Timbó roots*. — These roots have the form of a rhizome, brownish yellow in colour, widely incurved on one side, where in the case of large roots there is a depression and with young roots there is a slight projection.

The diameter of these roots varies from 1 to 3 cm. The surface is striated by longitudinal furrows. The cortex is somewhat thick, from 2 to 3 mm.; it is light yellow and surrounds a darker xylem tending to brown. The vascular tissue of the xylem is well formed and visible to the naked eye so that the medullary rays are clearly seen. The medulla is small with portions extending to the periphery. The position of the medulla on the periphery varies where a root of any size is inserted on the rhizome, forming a kind of node. This peripheral displacement of the medulla is absolutely characteristic, and imparts to the medullary rays a quite special characteristic arrangement. The secondary roots are few in number and leave circular scars forming small protuberances on the cortex. On breaking, the whole is fibrous. The roots plunged into water release starch in abundance; they tinge the water yellow and give off a very distinctive odour. If mashed the roots taste at first mucilaginous and sweet, then they become more and more acrid and leave a lasting sensations of pricking in the throat.

(c) ANATOMICAL CHARACTERISTICS.

The anatomical characteristics of the roots of cubé and of timbó are nearly comparable. In the roots of timbó however the hardened fibres are massed together rather than in bundles as in the cubé roots.

(d) LOCALIZATION OF ROTENONE IN THE ROOTS OF CUBE AND OF TIMBÓ.

In their comprehensive study of the roots of cubé and of timbó, MM. J. and Michel CHEVALIER, in addition to determining the anatomical characters and the external appearance, tried also to localize the rotenone with exactness. In order to identify the position of the rotenone, they had to make use of its solubility in chloroform. Localization was first effected on a cut portion, then this was plunged into chloroform for a quarter of an hour or a half hour, when the traces previously observed disappeared. The place occupied by the rotenone could thus be determined by a simple comparison.

These investigations have shown that in the roots of cubé and of timbó the rotenone is localised in the same regions and has a similar appearance. It is found in the cortical parenchyma, especially below the cork layer and where the medullary rays project, in the rays themselves. in the parenchyma of the cellulosic xylem and in the parenchyma of the medulla. The cells in which rotenone occurs are thick and cellulosic.

All these observations are of the greatest interest for facilitating the survey of root consignments, for estimating their value and for knowing whether roots of *Derris* or those of cubé and timbó are under observation.

(e) PREPARATION OF MILLED ROOTS.

For the preparation of the milled roots of cubé the following operations at least are required: (a) cutting into sections or chopping of the roots; (b) crushing; (c) pulverisation; (d) grading of the powders by degree of fineness; (e) rendering the product homogeneous; (f) analysis; (g) blending and standardization in as to obtain a definite percentage figure of rotenone and of total extract.

For chopping the roots of cubé, machines of the "Rotary Cutter" type are used. In small scale industry, a guillotine chopper or even an ordinary knife may be utilized.

The roots are crushed in mortars with hammers which make 1600 to 1800 revolutions a minute; the coarse powder obtained is directed by means of bellows on to sieves which retain the coarser elements. In the course of this operation all that is necessary is to take care that material is fed to the mortar in such a way as to avoid overheating and the rise of the temperature above 75° C.

The cubé powder to be utilized as powder or in suspension in soapy water must pass through mesh 200.

In American factories crushing is done in lots of 500 kg. Each milled lot is then placed in a mixer so as to obtain as homogeneous a powder as possible. Afterwards, a representative sample is taken and analysed by suitable methods to be described later. The cubé powders contain from 4 to 5 per cent. of rotenone.

This content is usually reduced in commercial insecticides, by means of mixture with neutral substances, to a percentage of 0.75 to 1. The powder also may be placed in suspension in a soap emulsion. Liquid insecticides thus prepared usually contain 3 kg. of cubé root powder, with 5 per cent. of rotenone and 15 per cent. of total extract, to 500 litres of water. This quantity is enough for the treatment of one hectare.

DIFFERENCES BETWEEN THE POWDERS OF DERRIS AND OF LONCHOCARPUS.

It is advisable to note the differences between the powders of *Lonchocarpus* and those of *Derris*, so as to be in a position to detect mixtures and adulterations.

In the first place, the roots of the two kinds of plant behave differently during milling. *Derris* roots are hard and tough, their reaction to crushing is thus quite satisfactory and little debris is left. On the other hand, *Lonchocarpus* roots are friable and resemble wood that is beginning to rot; they thus leave more wood debris in the process of crushing.

Derris powders have a pleasant characteristic odour; the colour is brownish but may sometimes be lighter tending towards beige. In any case the tint is always a warm one, never with any tinge of green or grey.

Lonchocarpus powders diffuse an unpleasant odour; they smell of mould. Their colour is greenish yellow or grey, never tending towards brown, even for the darkest powders.

Unfortunately these very marked differences of odour and coloration cannot be employed for the analysis of mixtures of the two powders, especially when a third substance has been used as filler. Microscopic analysis then becomes necessary. Under microscopic examination, the powders of the two kinds differ very little. The following elements are found: ligneous vascular tissue, cells containing crystals, pitted vessels and cells, concreted cells, fragments of parenchyma, gum and tannic acid. The starch grains are the only elements by which it is possible to distinguish the plant from which the powder analysed is derived. The starch grains of *Derris* usually have the hilum pointed; the hilum of starch grains of *Lonchocarpus* is most often in the form of a crack. A large proportion of starch grains of *Derris* are found without hilum. A. DIAKONOFF has made a careful study of the relative dimensions of starch grains of *Derris* and of *Lonchocarpus*; he has reproduced on a graph the results reached; he found that the length of the starch grains of *Derris* is on an average 6.38 with a deviation of 0.14 μ . and that that of the starch grains of *Lonchocarpus* was 9.80 μ . with a deviation of 0.2 μ . From these studies and measurements it is clear that microscopic analysis of the starch grains enables detection in a mixture of the presence of powders of *Lonchocarpus* and of *Derris*.

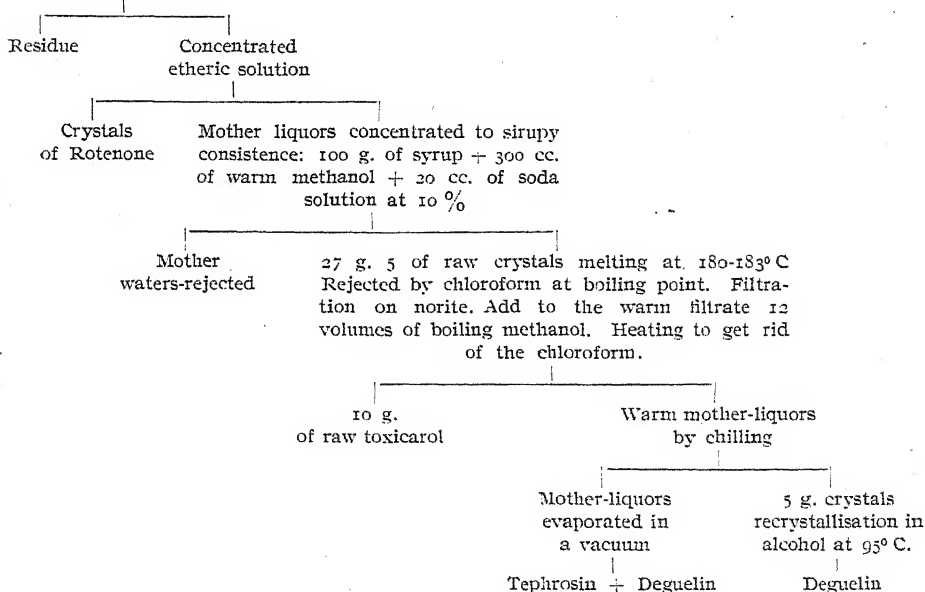
CHEMICAL COMPOSITION OF LONCHOCARPUS ROOTS.

The first chemical study of *Lonchocarpus* roots was made by GEOFFROY who in 1895 succeeded in extracting from *Robinia nicon* (now *Lonchocarpus nicon*) a substance he called nicoulin. The properties of nicoulin, as described by GEOFF-

FROY, show that it was the substance now extracted from the roots of *Lonchocarpus nicou* and known under the name of rotenone.

In 1931, CLARK carried the analysis of *Lonchocarpus* roots to a further point. Treating the mother liquors of crystallisation of rotenone by means of potassium, he isolated raw crystals fusing at 180-185° C, very similar to the tephrosin previously obtained. These crystals are simply a mixture of the three following compounds: deguelin, tephrosin and toxicarol. The technique followed by CLARK for proceeding to this extraction is synthesized in the following formula:

Roots of *Lonchocarpus nicou*
Extraction by ether



CLARK has thus obtained from roots of *Lonchocarpus nicou* on an average 5 per cent. of rotenone, 1.6 per cent. of raw deguelin, 1.9 per cent. of a mixture of deguelin and tephrosin (by evaporation of the mother-liquors of crystallisation of the deguelin) and 1.8 per cent. of toxicarol. In addition to these well defined substances, resins of unknown composition remain.

Of the substances isolated in the nearly pure state from the roots, rotenone is the most important, since it is both the most abundant and also the most toxic. Investigations have in fact shown that the toxicity of the residue, after extraction of the rotenone, is equal to 40 per cent. of that of the rotenone.

The rotenone content of 23 samples of cubé roots analysed by JONES varied from 0.8 to 11.2 per cent., the average content being 5.4 per cent. This average is fairly high, compared with the other fish-poisoning plants of commerce. The same chemist has analysed *Derris* roots the rotenone content of which varied from 0 to 7 per cent. with an average of 2.5 per cent. only.

It is of interest to examine the causes of the variations of rotenone content in the roots. Observations made by ROARK enabled him to report that the slender roots contain more rotenone than roots with an average diameter. It has been possible to verify this observation at the Chemical Laboratory of the Agricultural Experiment Station of La Molina, Peru.

The following figures have been obtained:

TABLE II. — *Rotenone content of cubé roots, according to diameters.*

(after the analyses made at La Mollina).

	Diameter of roots 1 to 2 cm.	Diameter of roots 0.7 to 1 cm	Diameter of roots equal to or less than 0.7 cm.
% rotenone	4.5	5.2	6.0
% total extract	15.2	17.8	20.4

It is thus established that the rotenone content of the roots is in inverse ratio to their diameter.

The extracts obtained by the various solvents (chloroform, carbon tetrachloride, ether, etc.) on the same sample do not give the same figure, and moreover the differences are not constant and are consequently difficult to interpret. When operating on cubé roots, the toxicity of the extracts obtained with the various solvents is nearly equivalent; when operating on *Derris* roots, the extracts on the contrary do not show the same toxicity. According to A. D. LICHTBODY the extract made by acetone is the most toxic, those made by chloroform and by ether come next, then last the carbon tetrachloride extract.

There is an essential difference in chemical composition between the roots of cubé and those of *Derris*. In cubé roots the ratio between the rotenone content and the total extract is nearly constant, and is approximately 1 to 3 when the extraction is made by means of carbon tetrachloride. On the contrary, in the case of *Derris*, the content in extract shows no ratio to the rotenone content.

Summarising, the various analyses of roots of *Lonchocarpus* and of *Derris* show that:

(1) The roots of *Lonchocarpus* contain on an average more rotenone than those of *Derris* and it is the most slender of these roots which have the highest rotenone content.

(2) Roots of *Lonchocarpus*, as well as of *Derris*, contain other toxic substances, and in particular, toxicarol, tephrosin and deguelin.

(3) The toxicity of the total extract of *Lonchocarpus* roots does not depend on the solvent utilized, while that of the total extract of *Derris* roots does so depend.

(4) The ratio between the rotenone content and the total extract is nearly constant with *Lonchocarpus* roots, while this is not the case with *Derris* roots.

PREPARATION OF EXTRACTS OF LONCHOCARPUS ROOTS.

The procedure followed for obtaining total extracts of cubé roots closely resembles that employed with other plant products. The two methods most in use are the method of extraction by diffusion, operating in cold, and the Soxhlet method, operating in heat. The former method has the indisputable advantage of avoiding the too violent heating of the active principles, but has the disadvantage that the extraction of the powder is less complete than with the second method. With the Soxhlet method, it has been found possible to regulate the temperature so that the active principles are not affected. It is more usual to adopt this latter method.

There are in addition a certain number of other processes of industrial extraction which have recently been patented.

The principal solvents which may be used for industrial extraction of the active substances of the roots of cubé are: acetone, benzene, carbon tetrachloride and ethylene bichloride. Carbon tetrachloride is used relatively little as it dissolves very little rotenone, and produces corrosive substances which injure the apparatus. Benzene is scarcely ever employed as it is excessively toxic for the operators. Acetone is much used, as it is easy to recover. But the solvent most in use, in Peru in particular, is ethylene bichloride. Extracts of cubé prepared with this last solvent dissolve more easily in kerosene than extracts prepared with acetone, a feature of great importance for the manufacture of insecticides.

PREPARATION OF INSECTICIDES AND OF ANTIPARASITIC PRODUCTS ON A CUBÉ BASIS.

At the La Molina Experiment Station, in Peru, numerous experiments have been carried out in the preparation of insecticides and anti-parasitic products with a cubé basis. A summary of the results obtained in the course of these trials may be given.

The principal insecticide and antiparasitic preparations with a cubé basis are as follows:

- (1) Standardized cubé root powder, for farm use or for destruction of the parasites of domestic animals;
- (2) Liquid extract of cubé standardized for the same uses.
- (3) Extract of cubé in the form of a paste used for producing liquid extracts by dilution in a suitable solvent.
- (4) Liquid insecticide for household use with a cubé extract basis.
- (5) Insecticide powder for household use with a basis of cubé roots, pyrethrum flowers and naphthaline, known as « Pi-cu-naf ».
- (6) Liquid insecticide for household use with a basis of extract of cubé root, extract of flowers of pyrethrum, perfume and kerosene, to which the name of « Picu-molina » has been given.

(to be concluded).

J. LEGROS

AGRICULTURAL SERVICES SUPPLIED BY RAILWAY COMPANIES

Introduction.

To those engaged in the study of agricultural questions new problems seem to present themselves every day. The fundamental conceptions on which farming was based in the old days have been swept away. Agriculture has been affected by the political and economic changes that have taken place since the rise of industry. Demand has changed in volume and distribution, necessitating an adaptation of production. The food problem itself has changed in regard to both men and animals. Hygiene has become a necessity. The farmer of the present day must acquire a considerable amount of abstract knowledge if he is to maintain his place in the economic life of his country and move with the times. The empiric methods of farming which were transmitted to him from past generations are no longer adequate in a world where men *plan* economic and technical evolution by working along lines in which the exigencies of natural economic laws play an ever smaller part.

The education of the small farmer is difficult but necessary: since, however, the education of children has not always been sufficient and has lagged behind the march of progress, it is advisable to educate the adults. It is for this reason that so much importance is attached to agricultural instruction.

The isolation of farmers, even in densely populated countries, has always been a serious obstacle to instruction and propaganda. It is difficult to reach people whose occupation compels them to live in country districts where means of communication are often scanty. Propaganda, if it is to be effective, must appeal to the mentality of the farmer and be brought almost to his door.

The agricultural services formed by the railway companies realized how valuable an instrument of penetration and propaganda they possessed in the railway. Their efforts were mainly directed towards the instruction of farmers and, by means of the railway, they could transport cumbersome and expensive demonstration materials which represented the latest achievements of modern science. Their efforts have been successful.

It was felt that it would be of interest to make an enquiry into the activities of the various railway agricultural services in different countries. In reply to this enquiry a number of answers were received and we are grateful to those organizations who supplied us with the information requested. It is clear that instruction and propaganda by means of exhibition-trains (the special activity of the agricultural service) has met with the greatest success in those countries where centralization and administrative organization are not far advanced and where there are large tracts of agricultural land and few urban centres.

We will mention first those countries in which, according to their own statements, agricultural services do not exist and where the railway companies have done little or no work in this field.

The *Bulgarian* port railways have provided no agricultural service nor have they organized exhibition-trains, but the subject is under consideration. The same is true of *Great Britain*, *Denmark* and *Greece*, the railways confining their assistance to the reduction of rates for agricultural produce.

The managers of the *Hungarian* railways have for some years considered the organization of exhibition-trains for the dissemination of agricultural and commercial information; up to the present no definite plan has been drawn up nor have such trains been run.

No railway agricultural service exists in *Italy* but there is a « works service » which studies all questions connected with agriculture and forestry. For demonstration and propaganda purposes on behalf of superior timber suitable for sleepers this service has devoted some attention to the cultivation of eucalyptuses of the *rostrata* and resinous varieties on land belonging to the Administration. In the interest of autarchy it also advocates the planting of genista and castor-oil plants along railway embankments.

The railway companies of *Latvia* and the *Netherlands* have not undertaken agricultural propaganda of any kind.

The Polish Railway have not organized exhibition trains but have done some propaganda by setting up model holdings for horticulture, apiculture and poultry-breeding. As in *Yugoslavia*, these holdings are allotted only to railway employees. The *Romanian* and *Swiss* railway companies carry on no agricultural propaganda. In *Switzerland*, however, an exhibition-train circulated on the Federal railways during the years 1934-36 but it was mainly organized by the Zurich co-operative association for travelling exhibitions. The central propaganda office for products of Swiss fruit growing and viticulture collaborated by supplying samples of wine, cider, honey, etc.

The Ministry of Railways of *Czechoslovakia* grants considerable tariff concessions for the transport of agricultural products. Farmers' organizations are represented on the railway rates committee, which acts as a advisory body to the Ministry on all questions of principle regarding rates.

In *Turkey* no propaganda is carried on, unless a nursery which has existed since 1928 for the purpose of supplying railway stations with trees may be included under this heading.

Neither agricultural services nor exhibition-trains have been organized in *Australia*.

In *South America* the Chilean railways co-operate in the agricultural propaganda of the Ministry of Agriculture by granting reductions in freight rates. No special agricultural programme has been drawn up by the Colombian railway authorities.

Those countries which, in reply to our enquiry, stated that they provide agricultural services are the following: France and Yugoslavia in *Europe*; Canada and the United States in *America*; the Union of South Africa, Australia (Victoria) and New Zealand.

Canada.

HISTORICAL.

As Canada was a colony, the attention of the railway companies was soon turned towards agriculture. The first railway line in Canada was constructed in 1836 and large-scale work begun in 1851 but it was not until some years

later, when the Canadian Pacific line was opened, connecting Montreal with Vancouver, a distance of 4,675 km., that the railway companies entered upon a period of definite agricultural activity. In 1927 the Canadian Pacific Railway had a total length of 32,421 km. and the Company has done much for the benefit of agriculture. Unfortunately no information on this subject is available.

We know, however, that the Canadian National Railways Company has a vast agricultural programme, a summary of which is given below. After the World War the Canadian Northern and the Trunk Pacific Railways, which were in difficulties, were absorbed in the Canadian National Railways.

The Canadian railway lines have a total length of 90,000 km.

THE CANADIAN NATIONAL RAILWAYS.

ESTABLISHMENT OF AN AGRICULTURAL SERVICE. — On January 1, 1925, the Canadian National Railways organized an agricultural service known as the Colonization and Agriculture Department.

ACTIVITIES OF THE SERVICE: ITS OBJECTS AND RESULTS. — The work of the Agriculture Department is to develop an association with those agencies which play a part in increasing and developing new sources of production. This is accomplished by working closely with representatives of the Federal and Provincial Governments, commercial agricultural agencies, farmers' organizations, Agricultural Colleges, Chambers of Commerce, Service Clubs and the daily and weekly press. The Department also publishes pamphlets, circulars, etc. and forms a connecting link between the agricultural industry and the railway company. All its assistance is for the development of a more profitable agriculture which at the same time usually results in an increase in railway traffic.

Some examples of the work of the Agricultural Service are given below:—

(a) The Soil Improvement Campaign, through the operation of a special Soils Train, started ten years ago, was an important factor in increasing almost ten times the use of agricultural limestone and trebling the sale of fertilizers in the Province of Quebec.

(b) In the western provinces the Service has organized Community Progress Competitions in foreign-speaking communities. No such effort had been attempted previously to develop Canadian citizenship and a number of very interesting community agricultural projects have been developed as a result of these competitions. Thus, from the cash prize secured, one community purchased several purebred stallions and during 1937, from this district alone, 20 carloads of horses were sold.

(c) The development of new breeding and feeding centres for horses, cattle, sheep and pigs and the introduction of improved sires—for example, by the western horse breeding clubs—together with better varieties of grain have helped to render agriculture more profitable.

(d) The growing of green peas on the Gaspé Coast, started some years ago by the Agriculture Department, now represents an additional yearly income of about \$ 30,000 for the farmers of that district.

(e) Though there are many peat bogs in Canada, it was not until the Department found new uses for this material in agricultural and industrial enterprises that any progress was made in supplying the Canadian market which had largely been supplied by importations from other countries. The quality of peat has been improved and the demand for good Canadian peat is increasing. In the year 1937 sixty carloads were sold from the one bog the Department had helped to develop. This was new business and in a few years an annual sale of 200 to 300 carloads is anticipated.

(f) The Agricultural Improvement Campaign in the Lake St. John district of Quebec was started as a result of a survey of agricultural conditions. Figures indicated a low milk production, with possibilities of raising more hogs subject to the growing of more appropriate crops. This "More Milk per Cow and More Hogs per Farm" project has resulted in the elimination of many cows yielding little milk, in the increased butter fat production of 22 lb. per cow, with the additional sale of over 100 carloads of hogs during the last four years.

(g) New wealth was brought to certain farming districts in the four Eastern Provinces by improved production and marketing methods with small fruits and the salvaging of surplus berries by freezing and canning.

(h) The establishing of seed producing centres at different points in Western Canada, the introduction of better varieties and improved breeding stock through Boys' and Girls Clubs, its participation in organizing agricultural tours, conventions, fairs, sales, field days, short courses of instruction, surveys, lectures and many other varied activities enable the Department to promote the goodwill of the farming people and to increase production on the railway lines.

COOPERATION WITH GOVERNMENT SERVICES. — Agricultural trains have been operated in co-operation with the agricultural departments of the Provinces, and other interested organizations and it is only for reasons of economy that they have recently been discontinued.

CONTROL. — In some cases the agricultural trains are entirely controlled by the Provincial Department of Agriculture; in other cases, they are operated jointly with other Provincial Departments, the Dominion Government, Agricultural Colleges and the railway authorities.

RUNNING OF EXHIBITION TRAINS. — Exhibition trains were operated prior to the formation of the Colonization and Agriculture Department, that is to say, before 1925, as we have seen.

Summer and autumn are usually the most favourable periods for the running of these trains. The policy of the Department is not to have more than one train a year operating in a district on some particular phase of agriculture.

TYPE OF TRAIN USED. — The type of train used for exhibition purposes varies a great deal but usually consists of second-class passenger coaches, varying in number from one to five, from which the seats have been removed. Any livestock carried for demonstration purposes would, of course, be handled in livestock cars or specially built box cars or flat cars.

STAFF. — The staff of engineers, lecturers and demonstrators, is recruited from Agricultural Colleges, Government Departments, commercial companies and the railways. All members of the staff are able to give lectures, conduct demonstrations and — in many cases — to show educational films.

INTERNAL ARRANGEMENT OF EXHIBITION-CARS. — The arrangement of the demonstration cars depends on the aim pursued. In general, there are several kinds of display exemplifying one or two ideas. In the Soil Train, for instance, there was a laboratory car where soils were given a quick lime test, then a lime car giving experimental results in the form of charts and a small sample of soil with crop displayed where people could actually see for themselves some of the results obtained. The use of lime was also featured in ten factors leading to improved soil fertility. These two cars formed the main feature of the train.

Any other aspect of the question was represented by a third car in which the results of fertilizers were displayed with charts and a summary of experiments. The fourth car was for the purpose of holding meetings when the weather was unfavourable for holding gatherings outside. The fifth was a combination sleeping and dining car for ten members of the staff. In other cases, this last car might be a caboose, which would be used only for clerical work during the day.

PUBLICITY ORGANIZATION. — The success of demonstration trains depends largely on the advance publicity in the localities where the train will stop. The most successful trains were organized a year in advance. In the opinion of the Agricultural Department, no one form of publicity is sufficient and the more varied the approach to the subject, the more satisfactory the results will be. This includes press articles, circulars, pamphlets, radio announcements, notices read from the pulpit, municipal councils and schools, distribution of announcements by rural mail and through local organizations and agricultural officials. Where possible, it seems advisable to have interested parties do something themselves, such as bringing a sample of soil for analysis.

RESULTS OBTAINED. — The best results were obtained from two Soil Trains operated in 1930 and 1931. These two trains made 72 stops, were visited by 19,500 farmers, and 10,555 soil samples were tested. The Province of Quebec, where these trains were operated used in 1928 some 4,628 tons of agricultural limestone and in 1937, some 42,065 tons were distributed and the use of fertilizers has about trebled in the same interval.

The railways have not given any encouragement to propaganda by motor truck. Some Provincial Governments attempted it but, as it was not so satisfactory, it has been discontinued.

France.

INTRODUCTION OF AGRICULTURAL SERVICES. — The transport of agricultural produce represents a considerable amount of traffic on French railways and the old railway companies gave special attention to every means of promoting

this part of national activity. Hence the formation of "agricultural services" or "agricultural propaganda services" by the various Companies. These were introduced as follows:

- Compagnie Paris-Orléans in 1903
- » Paris Lyon Méditerranée en 1912
- » Etat in 1914
- » Midi in 1920
- » Alsace Lorraine in 1924.

The Nord and Est companies instructed some of their commercial inspectors to study agricultural questions.

This organization was maintained in its general structure when the French railways were nationalized (January 1, 1938) and merged into the *Société Nationale des Chemins de Fer Français*.

OBJECTS. — The agricultural activities of the railways comprise two series of measures, one technical and the other commercial.

The technical measures aim at the introduction, development or improvement of crops or livestock calculated to increase the tonnage of railway traffic, such measures to be carried out in regions recognized as suitable for the purpose. In so directing production due account is taken of consumers' needs and preferences.

The commercial measures are designed to turn the attention of producers and dealers to existing but partially neglected markets, to customers' demands in respect of quality and quantity, to foreign competition, and to new methods and implements which might be adopted with advantage.

METHODS. — A number of methods are adopted varying according to circumstances. They include:

Lectures illustrated by films.

Practical demonstrations (pruning of fruit trees, treatment of plant diseases, etc.).

Distribution at reduced prices (in some cases, free of charge) of plants seeds, etc.

Organization of congresses.

Study tours in France and other countries.

Organization of exhibitions and propaganda trains.

Subsidies to research stations for the study of certain questions.

The awarding of medals and diplomas for success in certain competitions.

ORGANIZATION OF EXHIBITION TRAINS. — Some years ago the *Compagnie des Chemins de Fer du Nord* placed at the disposal of the Regional Agricultural Services a demonstration train composed of three cars: one cinema car for the projection of documentary and technical films and for lectures; and two cars arranged as show-rooms for products and apparatus. This train, which has travelled on various occasions in different departments in the north of France, was intended for the instruction of farmers in all that concerns fruit production, arboriculture and the antiparasite and anticryptogamic treatment of fruit-trees.

The services interested are allowed perfect freedom as to the manner in which they utilize the material entrusted to them. The agricultural instructors usually obtain the material necessary for their demonstrations from the manufacturers.

La Compagnie des Chemins de Fer d'Alsace et de Lorraine has a very active agricultural service composed of a director and an assistant agricultural engineer; so far, however, it has not organized exhibition trains. Propaganda trains, including one illustrating the uses of electricity on farms, have circulated on the Alsace Lorraine railways, but they were equipped and run by other railway companies. The electricity train was run, and the public admitted, free of charge.

La Compagnie des Chemins de Fer de l'Etat, in collaboration with the National Fertilizer Propaganda Association, organized a train for fertilizers and selected seeds. During the period 1929-36 this train made 13 circuits, mainly during the months of January, February, September and October. It also travelled on the lines of the *Compagnie du Midi* from November 20 to December 11, 1933. The *Chemins de Fer de l'Etat* also ran two propaganda trains to encourage the consumption of sea-fish and the use of wood fuel.

The *Compagnie Paris-Orléans*, with the assistance of various organizations for electricity propaganda, equipped an exhibition train with rural electric appliances, which circulated on the lines of the Company from November 16, 1930 to January 11, 1931, and also on those of the *Midi* and the *Alsace and Lorraine Companies*, as mentioned above.

Speaking generally, the staff attached to each train comprised engineers and officials belonging to the railway and representatives of various propaganda organizations. The last named gave lectures, demonstrations and, in some cases, showed educational films.

(1) PROPAGANDA TRAIN FOR FERTILIZERS AND SELECTED SEEDS. — The contents of this train were as follows:

(a) samples of all kinds of fertilizers and literature on their use;

(b) a collection of superior varieties of cereals specially adapted to the geological and climatic conditions of western France. All groups interested in the production of, or trade in fertilizers, together with the seed-exhibitions Committee, participated in this enterprise, which was under the patronage of the Minister of Agriculture.

The train was composed of six cars specially arranged for an exhibition, with electric light, handsome carpets, photographs, graphs, and simple but striking formulae. The outside of the train was painted a cream colour. In addition there was a workshop car (for the generation of electricity) and a truck containing reserve material.

Four of the six cars contained everything relating to:—

(1) Lime dressing and sylvinitic;

(2) Basic slag, cyanamide and nitrate of soda;

(3) Superphosphates and sulphate of ammonia;

(4) Various fertilizers (nitrate of lime, nitrate of ammonia, urea, etc.).

A fifth car was reserved for selected seeds.

Finally, a sixth car showing isotherms completed the train for the purpose of showing farmers the advantage of refrigeration in the transport of perishable products. Propaganda agents appointed by the Fertilizer Propaganda Association were always present, ready to reply to technical or practical questions, thousands of which were put to them.

At each stopping place the Director of the agricultural services of the department the train was traversing gave a practical lecture on the use of fertilizers.

In order to encourage the visitors to make use of fertilizers, a free lottery was organized at each stage of the itinerary, the expense being borne by those responsible for the exhibition. Holders of the winning numbers received a certain amount of fertilizer accompanied by directions for its use. 130 tons of fertilizers were thus distributed.

Throughout the itinerary the train was always preceded by wide publicity.

(2) PROPAGANDA TRAIN FOR THE CONSUMPTION OF SEA-FISH. — The object of this propaganda train was to convince farmers of the food value and digestive quality of fish, hitherto but little recognized since fish is generally regarded as an additional expense rather than an article of food which, like meat, can be the basis of a meal.

This venture, which took place during May and June 1930, under the auspices of the Minister of the Mercantile Marine was one of the most original and most popular examples of this form of propaganda.

The train consisted of five cars communicating with each other, and a truck painted green and blue; a white, fleecy effect represented waves.

The two first cars were devoted to a realistic representation, provided by the Museum of La Rochelle of all edible sea-fish, together with a collection of appropriate literature on fishing and the many uses to which fish can be put.

The third car was reserved for the subject of fishing, including the processing and culinary uses of cod and herring. All that the *Association Française du Froid* has popularized since its inception concerning the use of refrigeration in the sea-fish industry was presented in a refrigeration car.

In another car visitors could watch the preparation by cookery-demonstrators of fish afterwards consumed by the spectators under a tent outside the car.

The principal accessories of this kitchen-car were an oven, an automatic plate-washer and a device for eliminating cooking odours.

(3) EXHIBITION TRAIN ON THE USE OF FOREST PRODUCTS AS FUEL. — In order to mitigate the crisis in the fuel trade the Chemins de Fer de l'Etat ran an exhibition-train from June 3 to July 15, 1937, to promote the use of wood fuels and forest products.

This enterprise, which was under the patronage of the Under-Secretary of the Ministry of Agriculture was of national interest and was organized with the collaboration of the Chemins de Fer de l'Est, of the majority of the wood and charcoal corporations and of a large number of manufacturers of carbonization ovens, gazogenes, light gas motors and electrogen groups, charcoal crushers, boilers heated by wood or charcoal, stoves and other domestic appliances involving the use of wood fuel.

The exhibition train, consisting of seven specially adapted cars, stopped in some thirty localities.

Lectures were given at some of these by an official of the Waters and Forests department.

(4) EXHIBITION TRAIN FOR THE USE OF ELECTRICITY IN THE COUNTRY. — In order to make known to those living in the country the advantages of electricity the *Compagnie d'Orléans* organized an exhibition-train for this purpose. So successful was the effort that the *Compagnie du Midi* copied it in the area served by their lines.

The exhibition train consisted of ten large cars specially equipped for the concrete demonstration of progress in the practical application of electricity.

1st car:

Fixed electric motors.
Portable electric motors, and motors on barrows.
Electric apparatus for animals.
Electric ploughing and threshing.
Electric pumping.

2nd car:

Use of electric power inside farms.

3rd car:

Application of electricity to dairy work.
Application of electricity to baking.
Application of electricity to laundry work.

4th car:

Electric accessories for domestic purposes: the distribution of water, the bathroom, kitchen, pantry, cleaning.

5th car:

Scientific lighting.
Refrigeration plant.
Heating.

6th and 7th cars:

Commercial stands.
Modern electrical appliances for many and varied purposes.

8th car:

Radio stand:
Electricity as applied to radio installations and gramophones (apparatus, accessories, spare parts, etc.).

9th car:

Rural crafts stand.

During the period March 1-April 19 the train covered the entire Orleans line, passing through 14 departments. Demonstrations were given in 38 farming districts.

In many places on the route provision was made for talks, practical demonstrations, lectures and film projections. The propaganda was supplemented by the free distribution to visitors of leaflets and pamphlets.

RESULTS. — The results obtained by the agricultural services of the separate railways cannot be expressed numerically but there can be no doubt that the notable increase in certain kinds of traffic is traceable in part to this source. Thus the tonnage of certain fruits and vegetables transported by passenger train by the P. L. M. rose from 190,000 metric tons in 1910 to 590,000 in 1931 while, as regards the P. O. and *Midi* the tonnage of the same produce rose from 52,000 metric tons in 1907 to 90,000 in 1931.

On the other hand, the success obtained by the various trains described above indicates the importance of the practical results of the propaganda.

The propaganda train for the use of fertilizers and selected seeds visited 288 localities, was run for five years and had most satisfactory results among the 200,000 farmers who visited this travelling exhibition.

The train for the consumption of sea-fish stopped at 22 western centres and was visited during its two months' itinerary by over 130,000 persons, while 2,500 kg. of cooked fish were distributed from its kitchen.

Precise figures showing the results obtained by the other exhibition trains are not available but it is probable that in each case the object was amply attained. It may be expected that this very effective method of propaganda will be further developed.

CONCLUSION. — The idea of agricultural propaganda is due — as is often the case in France — to private initiative. The State adopted the idea, improved upon it and, when the various railway systems were merged, endowed it with power and homogeneity which were hitherto lacking. It is to be hoped that the co-ordination between public and technical education on one hand and the French National Railway Company on the other will become closer. The object lesson given by an exhibition train should be made fruitful by instruction.

(To be continued).

A. BOUSSINGAULT

MISCELLANEOUS INFORMATION

AGRICULTURAL RESEARCH AND THE WORK OF THE AGRICULTURAL RESEARCH COUNCIL, LONDON. (Lecture delivered by Sir WILLIAM DAMPIER, ex-Secretary of the above Council, before the Farmers Club, 1938).

The Council, established by Royal Charter in 1931, has already issued two Reports covering the total period 1931-35 and a third report is now in the press. From the two former reports it is evident that this body is increasingly able to discharge the duties assigned to it, *viz.*, of directing the expansion of agricultural research to the most important needs of the industry, utilising to the greatest advantage the present and future facilities available at research Institutes and elsewhere, and furthering the coordination of agricultural research work in general. The annual budget of the Council is increasing yearly, and in 1937-38 the Council had at its disposal £ 88,640 for the direct promotion of research.

The Council began its task by a survey of the multifarious work in progress in the country. Six standing Committees were set up to cover the main branches of Agricultural Science: Soils and Plant Nutrition; Plant Physiology, Breeding and Disease; Animal Nutrition and Breeding; Animal Diseases; Dairying and Animal Products; Agricultural Economics. It appointed *ad hoc* committees, often including as members eminent experts from outside the Council, to deal with special subjects such as agricultural engineering, application of electricity to crops, consideration of programmes, finance, etc.

Much new knowledge is being acquired in the different divisions of agricultural science. Special soil studies are being made at Rothamsted, Oxford and near Aberdeen. Adopting the recent methods of LUNDAGÄRDH, spectroscopic analyses of soil extracts injected into an acetylene flame can be usefully made at a cost of about one penny each. The study of the crumb structure of soil has led to a new view: soil seems to be a series of cells connected by narrow necks. After rain these cells are full of water, and it is only the surplus water that leaches away. The problem of fruit-growing is dealt with at Long Aston and East Malling. At the former station it has been found, for example, that apples show no sharp segregation of characters; in polyploids several chromosomes are concerned in one character. At the latter station, the conversion of one apple variety into another and bringing it into full bearing within two years have been made feasible by inserting a number of grafts. WOODMAN'S finding that grass cut when 4-6 inches high and dried in hot air or furnace gases, contained almost as much nutriment as fresh grass, has brought into being four types of drying machines. The number of grass driers at work in Great Britain in 1937 was 75. The inquiry into contagious abortion in cattle has led to the establishment by the Council of a special Field Station at Compton in Berkshire. The aim of this Station is to breed disease-free animals for use in the different research stations. The Animal Diseases Research Association at Moredun near Edinburgh has discovered an effective vaccine against braxy, a disease which attacks sheep. A number of problems in Dairy Science are being treated at the respective Institutes in Shinfield, Kirkhill, Edinburgh, and London. Hitherto it had been assumed that the "plate-count" was the final standard of reference in estimating the number of living bacteria in milk. WILSON found that the chemical reduction, traced by the decolorisation of methylene blue, was a simple and rapid test for the cleanliness and keeping qua-

lities of milk. This test, in conjunction with the coliform test, was officially accepted in England in 1936.

All research work involving a number of observations need statistical guidance, both for the lay-out of plans and interpretation of results. Bigger centres have their own statisticians, and it is suggested that smaller Institutes within reasonable distance from each other might combine to secure the services of a statistician.

Fundamental economic problems and questions concerning the agricultural aspect of general economic policy are being treated at Oxford and at various other centres with advisory economists. The work of the Cambridge economists in surveying a large number of East Anglian farms proved so useful in formulating the agricultural policy that in 1936 it was determined to extend the method to other centres, so that a complete survey of the country might be obtained. Some time ago, an Economic Section under Mr. R. R. ENFIELD was established at the Ministry of Agriculture and Fisheries to study agricultural economics from the political aspect.

G. T. K.

NEW SUGAR BEET LIFTERS. — While the sugar beet lifters in use in Europe are all more or less built on the principle of lifting the beet after topping, a new machine recently invented in the United States lifts the beets and undetached leaves in a single operation; it is therefore a sort of "Combine" for beet-lifting, and renders the work entirely mechanical. Mounted on rubber tyres and weighing 12.5 quintals, this machine requires a tractive power of 20-25 HP on the draw bar. The machine is operated by the tractor's power take-off.

The machine deals with one row at a time; under normal conditions $\frac{1}{4}$ of a hectare (approximately $\frac{1}{2}$ an acre), should be cleared in an hour. The following is a description of the way in which the machine operates: first of all two teeth something like those for gathering sheaves, raise the leaves falling naturally to the right and left of the beet and draw them into a bunch. Immediately behind these leaf lifters, two endless rubber chains, which are inclined forward and operated by an inverse movement to that of the tractor, take the beets by the top and grip them; simultaneously, a pair of lifting blades comes into action from beneath. While the blades are loosening the beet, the two endless chains, raised towards the back, draw the beet from the soil. The lifting is executed almost vertically, because the rate at which the chains move towards the back is much about the same as that at which the tractor progresses. In this way the beets are cleaner when lifted than is the case with the methods usually employed.

The beet is carried along by the chain and after passing through two toothed rollers, reaches a topping device and then a cleaner; finally the beets are either collected in a receptacle which is emptied from time to time, or are carried by an elevator to a cart which accompanies the machine.

The beet leaves are immediately arranged in rows or collected in another receptacle which drops them in little heaps.

The tractor requires only its driver and a man to operate the "Combine". The machine has not yet been put on the market.

H. J. H.

INTERNATIONAL SOIL SCIENCE ASSOCIATION. — Volumes 1 and 2 of the Proceedings of the International Soil Science Association were published in 1925 and 1926 by the International Institute of Agriculture, Rome. Their contents consisted mainly of original publications, summaries, a bibliography and reports.

During the 1st Washington Congress (June 1927) and in agreement with the International Institute of Agriculture, it was resolved to publish these proceedings under a new form, so that thereafter they should contain only:

- (1) The reports of the International Soil Science Associations;
- (2) Summaries of publications.

At the same time Prof. SCHUCHT undertook to edit these proceedings in Berlin. The last number of these Proceedings, the well-known green book, was published for the last time in December 1938. For twelve years Prof. SCHUCHT has devoted much energy and time to this very important work and the Presidency wishes to express its sincere gratitude for his disinterested work for the benefit of the Association.

January 1939.

D. J. HISSINK, Assistant President and Hon. Secretary General. —
A. DEMOLON, Vice President. — A. A. JARLOV, Vice President. —
A. BRIZI, Secretary General of the International Institute of Agriculture, Representative of the International Institute of Agriculture. —
G. DE ANGELIS D'OSSAT, J. G. LIPMAN, E. JOHN RUSSELL, ex officio Members.

YIELD AND QUALITY OF OLIVE OIL IN RELATION TO SEASONAL CONDITIONS. — For eight years Prof. V. BRANDONISIO has been carrying out a series of experiments at the Bari Experiment Station with a view to establishing the relations between the development, ripening and degree of infection of olives on the one hand, and of the yield and quality of the oil on the other, under practical conditions for the utilization of the olives.

Experiments were made with the following varieties: Paesana, Coratina, Leccese, Cima di Mola, Pizuta, Rotondella and Cellina di Cassano, all widely cultivated in the important oil-producing region of Apulia. The experiments have demonstrated: (1) that the date when the yield is greatest is in strict ratio to the course of the season and to *Dacus* attacks, and that meteorological factors and attacks of the fly also cause fluctuations which are often quite considerable from one year to the other in the yield of a given variety of olives; (2) as the fruit ripens the oil content increases up to a certain maximum (optimum period for picking) after which it decreases; (3) *Dacus* attacks greatly diminish the chemical and organoleptic qualities of the oil; in fact, acidity which, when work is carried out under good conditions, can be kept below 1 per cent. in years when no attacks of *Dacus* occur, attains an average of 4.5 per cent. in years when the olives are attacked by *Dacus*; in olives which have been attacked by the fly, the composition of the oil is no longer normal, the solid glycerines and the average of non-saponifiable matter increasing, while the oils have a marked tendency to become rancid; (4) in the years when the olives have been attacked by *Dacus* a much larger quantity of residuals is obtained than from healthy olives; this is explained by the higher weight percentage of the stone as compared with the pulp, partly destroyed by the fly; finally the average quantity of fats has been found to be higher in the

residuals of olives attacked by the fly than it is in those of healthy olives. This is explained by the difficulties so often encountered in crushing olives during the years when the *Dacus* attacks have been severe.

A. P.

TECHNICAL BIBLIOGRAPHY

TOBEY, J. A., *The legal aspects of Milk Control*. International Association of Milk Sellers. Chicago III, 1936, p. 102.

Modern Science and human experience have abundantly proved that milk, "the most quite perfect food", is indispensable in the diet of all infants and young children and that the health of persons of every age benefits from the natural consumption of milk and its derivatives.

The importance of this food for public health is evident, and is sufficient explanation of the fact that all States have sooner or later instituted legislative control of milk, with varying degrees of strictness. Such control is the more necessary as milk, to a greater extent than any other food, is liable to fraudulent handling, adulterations and contamination. For this reason, impure milk represents a much more important factor in public life than pure milk.

"The Legal Aspects of Milk Control" is the work of a competent writer and is supplemented by a full bibliography. Dr. Tobey treats the whole subject with remarkable clearness in 10 chapters, summarised as follows:—

I. — Reasons for the public control of milk: Introductory, Court-Made Law, The Food Value of Milk, The Dairy Industry, Epidemics of Milk-Borne Diseases, Milk and the Law.

II. — The sanitary Regulation of Milk by the State: The Police Power, Milk Control and the United States Supreme Court, Decisions by Other Courts.

III. — Municipal Control of Milk: Ordinances, Boards of Health, The Content of a Milk Ordinance.

IV. — Licenses and Permits: Classification of Licenses, Cost of Licenses, Territorial Jurisdiction, Administration of Licenses, Revocation of Licenses, Contracts of Unlicensed Dealers.

V. — Standards for Milk and Dairy Products: Chemical Standards, Cream, Chocolate Milk, Butter and Butter Substitutes, Filled Milk and Cheese, Ice Cream, Other Dairy Products, The Intent of the Seller, The Grading of Milk, Samples.

VI. — Inspection, Sanitation and Seizure of Milk: Inspection of Dairies, Inspections Beyond City Limits, Certified Milk, Closing of Dairies, Sanitation of Milk Supplies, Embargoes on Unwholesome Milk, Seizure and Destruction of Milk.

VII. — Tuberculin Testing and the Health of Dairy Cattle: Bovine Tuberculosis, Court Decisions on Tuberculin Testing, The Eradication of Bovine Tuberculosis, Destruction of Diseased Cattle, Bang's Disease, Feeding of Cattle.

VIII. — Pasteurization: Court Decisions on Pasteurization, Pasteurization in the City Where Milk is Sold; Fees for Pasteurization, Other Decisions on Pasteurization, Pasteurization Not Upheld.

IX. — Containers for Milk: Prohibition of the Sale of Loose Milk, Cleanliness of Containers, Data on Bottles and Caps, Identification and Ownership of Bottles.

X. — Liability in Connection with Dairy Products: Liability for Unwholesome Dairy Products, Deliveries to Schools and Hospitals, Glass in Milk, Liability for Disease Due to Milk, Liability of Health Officials, Newspapers and Libel, Interference With Deliveries, Contracts.

The work gives an exact survey of the legal aspect of milk control in the United States of America, of value not only to the United States but also to other countries.

E. G.

Prof. ALESSANDRO BRIZI, *Segretario generale dell'Istituto, Direttore responsabile.*

MONTHLY BULLETIN

OF

AGRICULTURAL SCIENCE AND PRACTICE

CITRUS CULTIVATION IN THE U. S. S. R.

Citrus fruit cultivation in the U. S. S. R. is of very recent introduction, although in the seventeenth century there were some small groves near what is now the frontier separating the Soviet Union from Turkey.

Citrus fruit growing, mostly of *Unshiu* mandarines, was started on an industrial scale in 1897, but there was little development; in 1912 there were only 200,000 trees on an area of about 400 hectares. During the world war and the civil war, this area decreased considerably, and by 1920 had been reduced to 160 hectares. In 1921 the Government prepared an extensive programme for the industrial development of citrus cultivation, but the results of the first seven years' operation were not very encouraging, and in 1928 the total area planted to citrus fruit trees was barely 600 hectares. Since then, however, this branch of agriculture has made more rapid progress and by the end of 1937 6,450 hectares of land were under citrus fruit trees, as against 3,400 in 1935, and 2,100 in 1932. According to the last five-year plan, 20,000 hectares should be planted with citrus trees by 1940.

Development has been greatest in Georgia, where the groves are planted along the shores of the Black Sea, between the Turkish frontier and the town of Sochi, penetrating into the interior along the Rion valley, as far as the Samtredi district and in the Guria district as far as Ozurgeti. From Sochi to the Turkish frontier most of the orange trees are planted singly and are rarely found in groves. These are old trees which have never been grafted but which frequently yield heavy crops (from 4 to 5 thousand fruits per tree).

According to the 1933 census, the principal centres of cultivation are Adzhar, where 68 per cent. of the groves are situated, Abkhazia (19 per cent) and other districts (13 per cent).

At the beginning of 1938 the «sovkhoz» (State farms), held 1,893 of the 6,450 hectares of citrus fruit trees while 4,557 hectares belonged to the «kolkhoz» (collective farms) and to peasants.

In 1932, at the beginning of the second five-year plan, a study was made of the various species and varieties of *Citrus* acclimatized in the nurseries created for the purpose, as well as of the agroclimatologic and agrotechnical conditions of the districts best suited to the crop. In order to ensure the execution of the plan aiming at increasing the area under citrus to 20,000 hectares by 1940, extensive nurseries have been created in various parts of Georgia, covering in all about 653 hectares and cultivating five million trees.

The first attempts to introduce citrus fruits on the shores of the Caspian Sea date from 1928. An experiment field has been created for the purpose of studying the acclimatization of various varieties of citrus and especially of the Meyer lemon (a Chinese dwarf lemon), the Clementine, Silver Hill and Satsuma mandarines and the Japanese Natsu Mikan tree. A small nursery with an area of half a hectare supplies Unshiu mandarine trees.

Other experiments have been in progress in Central Asia since 1934, carried out by the experiment sub-station at Kyzylatrek in Turkmen, where a collection of citrus varieties was imported in 1935, most of which were grafted on the *Poncirus trifoliata*. In most cases the trees suffered considerably from the excess of chloride of sodium in the soil.

An attempt is also being made to introduce citrus fruit cultivation in the wet sub-tropical districts of Azerbaijan and Krasnodar; more than 100 hectares of citrus trees have already been planted and it is expected that by 1942 the area will have increased to between 2 and 3,000 hectares.

The Ivanovsk experiment station has been attempting since 1932 to extend citrus cultivation (especially lemons) further north. In 1937 this station had nearly 400 lemon trees of different varieties, 12 mandarines, 9 limequats and 6 orange trees. This station is trying to obtain by selection a variety of lemon which will prove highly resistant to cold.

The varieties of citrus fruits found on the shores of the Black Sea are as follows: *C. sinensis* Osbeck, *C. trifoliata*, *C. Aurantium* L., *C. myrtifolia* Rafin., *C. salicifolia* Rafin., *C. Bergamia* Risso, *C. deliciosa* Ten., *C. grandis* Osbeck, *C. Limetta* Risso, *C. limon*, Burm., *C. Medica* L., *C. microcarpa* Bunge, *C. Natsudaidai* Hayata, *C. Paradisi* Macf., *C. Unshiu* Mare, *C. Bigaradia macrocarpa* Risso, *Fortunella japonica* Swingle, *F. Margarita* Swingle, *F. crassifolia* Swingle.

The Plant Institute of the U. S. S. R. at Sukhum uses the following varieties in its citrus improvement work: Mikado, Dai-Dai, Uvatin mikan, and Clementine. Experiments have also been made with the Washington Navel, the Narris Orange, and the Cadenera. The Shamuti (Jaffa) orange is also found, but its characteristics are quite different from those of the Palestinian type: long thorns, straight leaves, etc. By grafting several Mediterranean varieties (Vaniglio sanguino, sanguino Paterno, Maiorca seedless, etc.), on the *Poncirus trifoliata* several very interesting strains have been obtained with cold resistant and good keeping qualities. The acclimatizing nursery at Sukhum has a collection of citrus fruit trees comprising 500 varieties and types.

The Nikitsky Botanical Garden (now Molotov), has been cultivating and acclimatizing American hybrids since 1927 (Morton citrange, Rusk, Rustic, Thomasville citrangquat, Eustis Limequat. The Odessa Botanical Garden has been experimenting since 1935 with the grafting of lemons in particular.

The plan for developing citrus fruit cultivation during the period between 1936 and 1940 includes the following centres: Abkhazia, Adzhar and Western Georgia in the districts of Makharadze, Lanchhuty, Tchokhataury, Zugdidi, Tshakaja, Poti, Hobi, Chhorotshousi, Tsalandjik, Martvill and Abacha. Accord-

ing to this plan, citrus fruits should cover 17,000 hectares in this area by 1940 (9,300 hectares of mandarine trees, 6,765 of lemon trees, and 935 of orange trees). By 1935 3,640 hectares were already planted with citrus fruits, while a further area of 2,355 hectares was planted in 1936 and 1937. The nurseries cover a very large area, amounting in all to 624 hectares. At the beginning of 1938, half the area planted to citrus fruits had not yet begun to produce.

The production for 1936 was 293 million fruits or about 550,000 quintals. Projected plantations during the period 1938-42 are as follows:—

Year	Mandarine trees hectares	Lemon trees hectares	Orange trees hectares	Total hectares	District where trees are to be planted	Total hectares per district
1938	2,983	801	216	4,000	Adzhar	4,530
1939	3,632	1,043	325	5,000		
1940	1,639	4,549	312	6,500	Abkhazia	5,445
1941	1,150	200	150	1,500		
1942	1,150	200	150	1,500	Western Georgia	8,525
Total . . .	10,554	6,703	1,153	18,500		18,500

Since the area occupied by citrus fruit groves was already 6,450 hectares at the end of 1937, according to the plan, by 1942 the area should reach 24,050 hectares as against 21,850 in 1940, so that when the trees reach the productive stage, the U. S. S. R. should have a crop of about 3 million quintals of fruit per annum, or about 1.7 kilograms per inhabitant.

Lemon cultivation in open fields cannot be intensified as the tree is so susceptible to cold. Several authors nevertheless consider that there is a great future, for lemons in particular, in a new type of cultivation, *i. e.*, pot cultivation, also called «indoor cultivation». It appears that shoots and small plants for growing lemon trees in pots in the home are much in demand and a nursery has therefore been created at the Pavlovo experiment sub-station for the cultivation of lemon trees under glass to meet this demand. This type of cultivation is also becoming popular at Baku, Sverdlovsk (Urals) and in the environs of Moscow. Since 1932 the Ivanovsk experiment station has been working on the extension of citrus fruit cultivation to more northerly regions. Although Russian experts maintain that there are excellent prospects for this branch it cannot be considered from anything but the ornamental standpoint, since it is of little practical value for the production of fruit.

The most common varieties of lemon for pot cultivation are the following: (1) *Novo-Afonsky* (New Athos); the tree is of average size, the fruit being also of medium size, long-shaped with a fine skin and tuberous; the pulp is acid but agreeable in flavour, aromatic and seedless; (2) *Eureka*, an American variety producing flowers and fruits almost all the year round, with very acid but aromatic fruit containing few seeds and bearing fruit after the third year; (3) *Lisbonne*, a tall tree with many thorns, long-shaped

or oval fruit with an accentuated point and with a lateral fold, fine skin, very juicy, and with few seeds; this tree usually bears two crops of fruit per year; (4) *Villefranca*, a tall tree, without thorns, long, oval fruit, round at the base, very acid and juicy, and resistant to cold; (5) *Kuzner*, a dwarf tree, productive and without thorns. (6) *Guenuezsky*, a small tree, thornless, very productive, soft-skinned fruit with very acid pulp and few seeds.

The organization of citrus cultivation is centralized in the U. S. S. R. Lemon and Mandarin Cultivation Trust (Limmantrust), founded in 1931 and comprising several sovkhos, kolkhos and peasant farms engaged in citrus cultivation. The trust controls the experimental nurseries and those for the propagation and quarantine of citrus fruit trees. It is anticipated that 4 million plants will have been grafted by 1940. The trust also fixes standards for fruit grading: mandarines are graded as follows: (1) fruit weighing 80 grams; (2) fruit weighing from 70 to 80 grams; (3) fruit weighing from 55 to 70 grams; (4) fruit weighing less than 55 grams. Generally speaking there are from 14 to 16 mandarines to a kilogram.

For the Moscow Agricultural Exhibition to be held during this year, the Trust has organized a competition between the various State, collective and peasant farms, illustrating the progress made in this important branch of fruit production during the last few years.

In this connection, it is interesting to study the publication by KAPTSINEL, M. (Citrus economy. *Soviet Subtropics*, Moscow 1938, No. 7, pp. 13-17), giving details of the area, production and gross profits obtained by the best sovkhos and kolkhos, a part of whose cultivated area is given over to citrus cultivation. This document brings out the wide differences in yield per cultivated hectare, and the very considerable difference in the selling prices of the fruits produced by the various enterprises participating in the Moscow Agricultural Exhibition. In the Kohorsky sovkhos (Galsky district, Abkhazia) founded in 1931, 3,235,000 fruits were produced in 1937 and sold for the sum of 995,000 roubles, while in the Kalinine kolkhos (Kobulety district), founded in 1929, the 1937 production amounted to 679,000 fruits which sold for 759,000 roubles. The ratio between the prices obtained for their fruits by these two concerns was therefore 0.8 to 3.3, or, in other words, the sale price varied between 0.31 roubles apiece for fruit grown at the Kohorsky sovkhos and 1.1 roubles apiece for the Kalinine fruit.

The following are the principal enemies of citrus fruits: *Pseudococcus gahani* Gren, *Pulvinaria aurantii* Ckll., *Lepidosaphes gloveri* Pack., *Ceroplastes sinensis* Dlg., *Aspidiotus perniciosus* Comst., *Aonidiella citrina* Coq.

A study of the Russian publications of the last few years dealing with citrus cultivation does not give a very clear idea of the real situation or of the prospects, as information and statistics are often incomplete, inexact and contradictory. It is clear, however, that a great effort has been made during the last ten years to develop citrus fruit production, formerly almost unknown in the country, and that encouraging results have been obtained.

A. PASCUAL.

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SOME LONCHOCARPUS SPECIES, ROTENONE YIELDING PLANTS OF SOUTH AMERICA (*concluded*)

III. — Uses.

TOXICITY AND BIOLOGICAL EFFECTS OF PREPARATIONS WITH CUBE POWDER.

(a) EFFECTS ON HIGHER ORGANISMS.

Many of the insecticides now in use contain certain substances which are very poisonous for human beings and for farm animals. Investigations have been made by a number of writers as to the biological action on the higher organisms of cubé powder and of preparations with a cubé powder basis. The results obtained show that rotenone appears to be only slightly poisonous for the higher animals; the effects of tephrosin, deguelin and toxicarol are trifling, at least when administered by the mouth. According to ROARK, fruits sprayed with rotenone preparations have no poisonous effects on human beings, from the day after the spraying. *Insecticides on a basis of rotenone or of the associated principles may thus be considered as practically harmless for human beings.*

Certain precautions should, however, be taken when crushing the roots. J. VINAS says that the crushing of roots and the preparation of rotenone insecticides involve for the workers certain disagreeable consequences, such as irritation of the throat, inflammation of the skin, blepharitis and conjunctivitis. Actual toxic effects are not known even after weeks of work. To avoid these drawbacks it is advisable to get rid of all dust, and to ventilate premises carefully and to oblige workers to wear spectacles and a mask consisting of a sponge which is kept damp in a rubber container.

(b) EFFECTS ON THE LOWER ANIMALS.

According to the historical survey made by ROARK the toxic substances from cubé were first employed in Surinam at the beginning of 1919 on the ant *Dolichoderus bidens* (Latr.). The results were doubtful.

The first really scientific trials on the utilization of cubé in agriculture were carried out in 1924 by MM. INDRO and SIEVERS. Later a number of investigations were made by other entomologists on the toxic effects of rotenone insecticides on the lower animals and on insects in particular. This toxicity varies greatly between different groups.

In any case, the action of rotenone insecticides is made much more effective by the addition of solvents or emulsions. In this way a better contact with the insects is effected and the fats with which their bodies are covered are dissolved. As rotenone is most often used as an external poison, the addition of all substances assisting the action of such poisons (in particular the sulphonate and oxide derivatives of petrol hydrocarbides) will greatly increase the efficacy of

rotenone insecticides. Finally it has been observed that the addition of soap emulsion increased the toxicity of insecticides with a cubé basis.

The results obtained in the course of toxicity experiments are briefly reported here.

Orthoptera.

The orthoptera appear to resist rotenone fairly well, as application is difficult. FRAPPA has however succeeded in obtaining good results in the case of house crickets, using commercial cubé powder.

Hemiptera.

Plant lice and, generally, all insects with soft non-protective teguments are very susceptible to the action of preparations with a basis of rotenone and associated principles. The relative toxicity of the different constituents of cubé roots may be estimated approximately as follows: rotenone = 400; deguelin = 40; tephrosin = 10; toxicarol = 1. The results obtained by experimenters show that rotenone at a strength of 1/100,000 compares favourably with nicotine at 1/10,000 and with the pyrethrins at 1/74,800.

The Aleurodidae are nearly as vulnerable as the plant lice. On the other hand, the scale insects, except for the pseudococci, resist the action of rotenone well.

Coleoptera.

No positive result in control of weevils has been obtained with rotenone. The larvae of the Chrysomelidae have been successfully kept down, a 96 per cent. mortality having been achieved with the larvae of the potato Colorado beetle (*Leptinotarsa decemlineata*). Results with the fully developed insect are less satisfactory. It is considered by DAVIDSON that, for destroying the larvae and eggs of the Colorado beetle, application of insecticides containing rotenone in a proportion of 1/120,000 might well replace those on a basis of 2 per cent. of lead arseniate, as generally applied.

The Coccinellidae, both fully developed insects and larvae, and in particular *Epilachna corrupta* Muls., are easily destroyed with sufficiently strong solutions.

Lepidoptera.

Trials have shown that against certain kinds of caterpillars rotenone is more effective than nicotine. It acts, in this case, not only as an external insecticide but even more as an internal poison. Rotenone and the associated principles are classed as internal poisons in the same order when used as external insecticides, while lead arseniate is placed, for toxicity, between tephrosin and toxicarol. On the whole however cubé has been shown to be ineffective against Lepidoptera.

Diptera.

The Diptera seem to be very susceptible to the action of rotenone and the associated principles, even when applied in very dilute solutions.

J. E. WILLE, J. ALCIDES OCAMPO, A. WEBERBAUER and D. SCHOFIELD, after comprehensive enquiry into the subject, reach the following conclusions:

(1) According to publications in all parts of the world, insecticides with a basis of rotenone and associated principles are effective against the different aphides. They have a limited effect on the Coleoptera and the Lepidoptera.

(2) These insecticides are not suitable for use against the Coccideae, the Coleoptera and the Lepidoptera in general.

(3) Experiments made by the Department of Entomology of La Molina Experiment Station have shown that insecticides with a basis of rotenone and the associated principles have been fairly efficacious against *Aphis gossypii*, very slightly efficacious and only in very high, and consequently uneconomic, concentrations, against *Dysdercus ruficollis* in laboratory trials, and completely inefficacious in field trials.

It appears from these results that it is difficult to utilize insecticides with a cubé basis for destruction of the insects most harmful to agriculture.

Comparative toxicity of cubé and Derris insecticides.

Since the most important active principle in insecticides with a cubé basis and those with a *Derris* basis is *rotenone*, it was of interest to see if the preparations with equal concentrations of rotenone had equal insecticide efficacy. Experiments were accordingly undertaken by P. A. van der LAAN and C. M. L. SMULDERS on the relative toxicity of preparations on a cubé and on a *Derris* basis, having the same rotenone content. The results of their trials were that preparations on a cubé basis were always less effective than those on a *Derris* basis (with equal rotenone content).

In their investigations these entomologists employed 8 types of *Derris* and *Lonchocarpus* powders which they used to prepare insecticides with the same rotenone content. The rotenone contents selected were in percentages of $\frac{1}{2}$, $\frac{3}{4}$ and 1, and the powders were mixed in suitable proportions with neutral substances, kieselgur, for example. The observations related to 120 insects belonging to the following species: *Euproctis chrysorrhoea* L., *Lophyrus pini* L. and *Myrmica rubra* L.

The results appear in Table III.

The following conclusions may be drawn from inspection of Table III: (1) Preparations on a *Derris* basis have on the average a greater efficacy against insects than those on a *Lonchocarpus* basis. (2) On caterpillars of *Euproctis chrysorrhoea* and on the larvae of *Lophyrus pini*, *Derris* preparations have almost double the efficacy of *Lonchocarpus* preparations. (3) *Derris* preparation are twice as efficacious against ants as *Lonchocarpus* preparations. *Derris* preparations with 0.5 per cent. rotenone content are even more efficacious than *Lonchocarpus* preparations with 1 per cent. rotenone content.

TABLE III. — *Comparative effect of insecticides on basis of Lonchocarpus or Derris powders with the same rotenone content.*

(according to experiments made by P. A. van der LAAN and C. M. L. SMULDERS).

Insects	Derris		Lonchocarpus	
	rotenone content %	average % of insects killed	rotenone content %	average % of insects killed
<i>Euproctis chrysorrhæa</i> L.	$\frac{3}{4}$	37.9	$\frac{3}{4}$	26.4
<i>Lophyrus pini</i> L.	$\frac{1}{2}$	53.1	$\frac{1}{2}$	42.1
<i>Myrmica rubra</i> L.	$\frac{1}{2}$	37.5	$\frac{1}{2}$	17.7
	$\frac{3}{4}$	59.5	$\frac{3}{4}$	28.5
	I	69.4	I	37.5

(c) EFFECT ON PARASITES OF FARM ANIMALS.

Preparations with a basis of *Lonchocarpus* powders are frequently used in Peru for the preparation of antiparasitic dips for sheep and cattle. According to the trials made on the Chuquibambilla farm in Peru, by H. PRESTON and C. J. BILLIWILLER, the following preparation has been established as the most efficacious: 227 grammes of pulverised cubé roots, containing at least 5 per cent. of rotenone to 100 gallons or 378.5 litres of water. For very severe cases, the proportion of cubé should be doubled.

Dr. J. F. MITCHELL of the Junín Central Stock Breeding Society recommends the following concentrations (see Table IV) as effective against the chief parasites of farm animals.

From the results obtained, there can be no doubt that cubé preparations will be increasingly employed for antiparasitic dips.

TABLE IV. — *Concentrations recommended for antiparasitic dips by J. F. MITCHELL of the Central Stock Breeding Society of Junín.*

Preparations and concentrations utilized		Sheep tick <i>Melophagus ovinus</i>	Cattle louse <i>Haematopinus eurysternus</i>	Goat mange <i>Sarcoptes</i> sp.	Alpaca mange <i>Psoroptes</i> sp.	Pig louse <i>Haematopinus suis</i>
Ground Cube root (rotenone 6.8 %, of total extract)	proportions . .	1/2,000	1/3,000	1/1,000	1/1,000	1/2,000
	grammes per gallon . . .	2.0	1.5	5.0	5.0	2.0
	% of rotenone.	0.0036	0.0021	0.0090	0.0090	0.0036
Cube root extract (rotenone 5.5 % = 0.0486 g. per cubic cm.)	proportions . .	1/10,000	1/15,000	1/5,000	1/5,000	1/8,000
	cubic cm. per gallon . . .	0.5	0.3	1.0	1.0	0.6
	% of rotenone	0.00064	0.00038	0.00129	0.00129	0.00076

(d) HOUSEHOLD USES.

Cubé and its various preparations may be utilized against lice and other parasites on man, against house pests (flies, mosquitoes, bugs, etc.) and against insects which attack foodstuffs.

The Maldonado Laboratory at Lima in 1931 prepared two products known as Sarnol and Piojol which both contain cubé extracts and have proved very efficacious against scabies in human beings. The effect is noticeable from the first application.

For destroying cockroaches, trials have been made with good results of a mixture consisting of 9 parts of potato starch and one part of *Derriis* or cubé powder with 5 per cent. rotenone content.

Preliminary trials made by the Department of Entomology of La Molina Experiment Station have given the impression that cubé roots with 5 per cent. content in rotenone, killing fish in 30 minutes, have no effect on mosquito larvae (*Anopheles pseudopunctipennis*). Similarly cubé powders have proved ineffective against bugs.

Trials carried out with cubé extracts diluted in kerosene have shown that these preparations were very effective against house flies and mosquitoes.

TRADE AND PRICES.

It is only within the last few years that the roots or powders of *Lonchocarpus* have entered into trade. It may be said that before 1932 cubé was not known in South America, except in certain parts of Peru where it was used for fishing. The first exports of cubé came from Surinam. SPOON mentions in an article that in 1930 more than 6,000 kg. of "nekoe" were already being exported from Surinam. After very wide fluctuations the volume of these exports was fixed again in 1932 at about 6,000 kg. as initial quantity.

Exports from Brazil only began in 1933 and on a somewhat limited scale; subsequently they were continued and in 1934—the last figure known—they amounted to 25 m. tons. The price paid was 480 milreis per metric ton f. o. b. Belem (Pará). The chief exporting port in Brazil is Pará. In view of the efforts made by the Brazilian Government to develop the cultivation and exploitation of timbó, Brazilian exports will undoubtedly increase and will occupy an important position on the world market.

At the present time, Peru is by far the leading exporter of cubé. Exports began in 1932 and the principal importing countries are the United States, Germany, France and Great Britain.

In Table V is shown the volume of exports from 1932 to the first seven months of 1938, under the principal importing countries, (for the first seven months of 1938 the figure shown is the aggregate quantity), and the corresponding value of exports in gold francs. The figures are those published in the Yearbook of Foreign Trade of Peru; the total values of the exports given in this Yearbook in "gold Soles", the Peruvian currency, have been converted

TABLE V. — *Volume and value of exports*

Countries	1932		1933		1934	
	Kg.	Gold francs	Kg.	Gold francs	Kg.	Gold francs
Germany	78	16.80	104	46.52	3,418	967.40
Australia	—	—	—	—	—	—
Belgium	—	—	—	—	—	—
United States	5,414	1,355.10	9,761	3,610.67	227,297	68,819.40
France	428	86.42	1,724	659 —	4,643	1,302.13
Great Britain	1,105	484.91	4,493	1,386.24	19,307	5,641.3
Netherlands	—	—	—	—	—	—
Italy	—	—	—	—	—	—
Sweden	676	1,200.27	—	—	—	—
Other countries	—	—	—	—	—	—
Total . . .	7,701	3,143.50	16,082	5,702.33	254,665	76,730.23

into gold francs using the successive devaluation coefficients published in the Statistical Yearbook of the League of Nations.

From this Table it will be seen that there has been a very large increase in the Peruvian exports which have risen, in five years, from 7,701 to 393,870 kg. It will also be noted that this rapid development of the Peruvian exports of *Lonchocarpus* roots was mainly effected in three years, from 1932 to 1935. Since then the fluctuations in volume have been much less marked, after reaching a maximum in 1935. From the figure of exports in the first 7 months of 1938 (249,852 kg.) it may be presumed that the maximum of 1935 will be exceeded in 1938 or at least reached.

It is of interest to note that the trends of development of exports the leading countries of destination—the United States, France, Great Britain and Germany—differ very markedly in each case. In the United States, a steep rise in exports was followed by a sharp fall and then by a fresh increase. In France and in Great Britain on the other hand a steady rise is observed up to 1935 and 1936, followed by a perceptible decline in 1937. In Germany there was a very decided rise in the course of 1934, after which exports seem to be practically stabilized. These fluctuations are shown in the following graph.

from Peru of unmilled *Lonchocarpus* roots.

1935		1936		1937		1938 (first 7 months)	
Kg.	Gold francs	Kg.	Gold francs	Kg.	Gold francs	Kg.	Gold francs
44,959	19,118.95	31,225	39,011.58	34,578	69,364.95	...	...
—	—	524	736.78	—	—	...	...
2,488	997.03	—	—	605	1,807.74	...	...
263,772	121,227.96	70,914	71,232.19	195,248	179,338.68	...	...
61,490	23,392.89	181,947	467,858.28	121,371	218,884.90	...	...
66,835	28,117.59	75,381	111,435.85	17,483	44,900.49	...	...
—	—	1,660	429.15	—	—	...	...
—	—	—	—	7,700	23,097.10	...	...
—	—	—	—	—	—
—	—	—	—	16,885	50,463.98	...	...
439,544	192,854.42	361,651	690,703.83	393,870	587,857.84	249,852	...

TABLE VI. — *Proportion of the four leading importing countries in cubé exports from Peru (1).*

Countries	1932	1933	1934	1935	1936	1937
Germany	1 %	0.6 %	1.3 %	1.2 %	8.5 %	8.5 %
United States	70 %	60 %	89 %	60 %	19 %	50 %
France	5.5 %	10 %	1.8 %	14 %	51 %	30 %
Great Britain	13 %	29 %	7.9 %	15 %	21 %	4 %

(1) The figures are approximate.

The percentages in this table showing the distribution of cubé exports among the four leading purchasing countries confirm the variations already noted in the graph and reveal that the exports are mainly absorbed by two countries, *viz.* the United States and France.

** *Tec. 2 Engl.*

PORTS OF EMBARCATION.

Peruvian cubé exports are nearly all made through the port of Iquitos (on the Amazon). The ports of Callao, Eten, Paita and Mollendo also carry on a small export trade in cubé roots.

PRICES.

The value of cubé roots depends on their rotenone content and varies with this content. Considerable research is now being carried out on the other elements with a view to fixing prices with these also taken into consideration. Prices vary according to ports of embarkation and importing countries. Table VII shows the prices in kilograms of raw roots.

TABLE VII. — *Prices per kg. in gold francs of raw roots of Lonchocarpus according to the different importing countries.*

Countries	1932	1933	1934	1935	1936	1937
Germany	0.21	0.44	0.28	0.42	1.27	2.00
United States	0.33	0.36	0.30	0.45	1.00	0.91
France	0.20	0.38	0.27	0.38	2.57	1.80
Great Britain	0.40	0.30	0.29	0.42	1.47	2.50

Table VII has been prepared from the figures given in « gold Soles » in the Yearbooks of the Foreign Trade of Peru; the gold soles have been converted into gold francs using for each year the devaluation coefficients contained in the Statistical Yearbook of the League of Nations.

A study of the table reveals the very noticeable rise in prices from 1932 to 1937; this rise is in part due to the development of demand.

Prices of *Derris* powder are usually slightly higher than those of *Lonchocarpus* powder with the same rotenone content.

LEGISLATION RELATING TO LONCHOCARPUS.

The Peruvian Government has promulgated a Supreme Decree and three Ministerial Resolutions for the protection of the cubé industry in Peru. A summary of this legislation follows.

(a) Supreme Decree No. 62 (Decreto Supremo No. 62 of April 4, 1933).

(1) The cultivation and industrial exploitation of plants known in the country under the names of barbasco or of cubé are declared to be of public utility.

(2) The sale outside the country of cuttings, seeds and fresh roots of these plants is prohibited.

(3) Export is permitted only of roots containing at most 10 per cent. of water.

(4) Parties concerned must apply to the competent authorities to obtain the certificate of analysis of the products and the export permits.

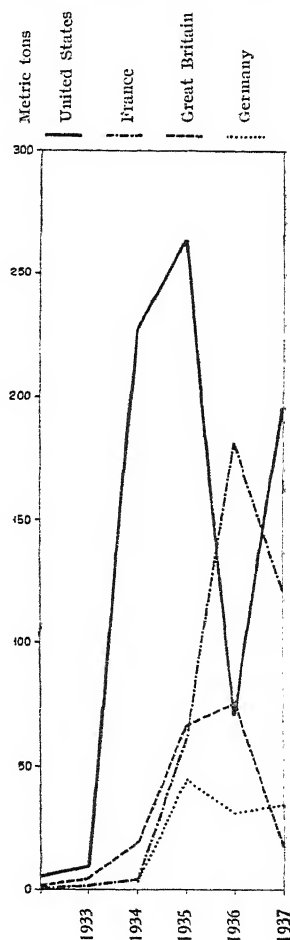
(5) The Department of Agriculture is empowered to instal central plants for extraction of rotenone in the localities best suited for the purpose.

(6) The Department of Agriculture shall take the necessary measures for the development of the scientific cultivation of the *Lonchocarpus* spp. and for their industrial processing.

The Ministerial Resolutions lay down the procedure to be followed for enabling exporters of cubé by the river port of Iquitos to have samples of their product analysed and to obtain export permits. The rules are also established for the installation of central plants for rotenone extraction.

The Government of the State of Pará in Brazil promulgated on April 3 1934 Decree No. 1259 placing the cultivation, trade and export of timbó under the control of the Department of Agriculture, Industry and Commerce. The only species of timbó that may be cultivated are those known under the names of macaquinho and uruçú. Other kinds may also be utilized but only on condition that they contain more than 3.5 per cent. of the active element. Export of timbó roots of all kinds is prohibited. For export the roots must first be carefully prepared, dried, reduced to powder and packed in tin containers hermetically sealed. Timbó powders can be exported only if accompanied by a certificate stating their water and rotenone content, and only timbó powders containing at least 3.5 per cent. of rotenone may be exported.

Exports to the leading countries of destination.



SUMMARY.

1. — Of all the fish-poisoning plants belonging to the genus *Lonchocarpus* which grow wild in Central and South America, *Lonchocarpus nicou* is the richest in toxic elements.

2. — *Lonchocarpus* spp. are cultivated mainly in Peru, Brazil, Dutch and British Guiana. They are known under various names: cubé, timbó, nekoe, haiari, etc.

3. — The plants belonging to the genus *Lonchocarpus* prefer a hot moist climate; they adapt themselves to all soils, but prefer light soils. They are best grown in association with other crops; propagation is effected by means of cuttings; the gathering of the roots takes place in the course of the second or third year, when the roots have a maximum content in toxic elements. The yield per hectare of fresh roots may be from 4500 to 4800 kg. The plants are liable to be attacked by certain insects.

4. — For commercial uses the roots must be dried so as not to contain more than 10 per cent. of water, then ground till the powder passes through No. 200 mesh. The roots are usually shipped before grinding, pressed in bales of 100 kg. *Derris* and *Lonchocarpus* powders differ in odour and colour; for identification in mixtures masking these two characteristics, it is necessary to examine them under the microscope, when the two types of starch grains can be distinguished.

5. — *Lonchocarpus* roots contain, as active elements, rotenone, tephrosin, deguelin and toxicarol. Long slender roots have the highest rotenone content. The average rotenone content is 5 per cent. Extracts of these roots can be obtained by means of solvents, the most important of which are acetone and ethylene dichloride. The toxicity of the total extract of *Lonchocarpus* roots does not depend on the solvent utilized, whereas that of the total extract of *Derris* roots does so depend.

6. — Insecticides with a rotenone basis are not poisonous for the higher animals. Their toxicity for the lower animals varies with the different species; it may be greatly increased by the action of solvents or emulsions.

7. — Legislation has been enacted by the producing countries, Peru and Brazil, for the development of *Lonchocarpus* cultivation and for the standardization of the products exported.

J. LEGROS.

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THE IMPORTANCE OF BREED CHARACTERS IN MODERN ANIMAL BREEDING

In a previous paper which appeared in the *Monthly Bulletin of Agricultural Science and Practice* No. 5, May 1937 the importance of the concept of the word «breed» was pointed out. It was also discussed, in that paper, how far breed characters should or should not be considered in the breeding of domestic animals. In view of the great importance of this problem and the disagreement among specialists, the author of this article has sought the opinion of experts of different countries. Although only a few of these opinions could be obtained to date, they offer considerable interest, both to animal husbandry workers and to actual breeders, and are worthy therefore of publication and discussion.

The significance of the phrase «breed characters».

It appears from the opinions expressed that experts in different countries have varying ideas about what is to be understood by «breed characters».

Prof. BUCHANAN SMITH (Edinburgh) distinguishes two groups of these characters:

- (a) those which possess some obvious economic value;
- (b) those which are merely used to distinguish a breed without contributing to the efficiency of the individual animal as a producer. The latter group is usually designated in Great Britain as «fancy points».

Dr. ENGELER (Lucerne) states that formerly under the term «breed characters» all those qualities of the animal have been considered which are apparent to the eye of the observer, *e.g.*, not only the colour and the pattern, but also the size and the particular form of some part of the animal's body. Only more recently, the concept also comprised, according to Dr. ENGELER, physiological characters not apparent to the eye, including characters of economic importance. ENGELER distinguishes between «properties» and «characters» of a breed, the former term comprising only external morphological characters.

Dr. GRAVES (Washington) includes in the idea of breed characters also physiological properties and characters of economic value like percentage of butter-fat in the milk.

In contrast to these opinions Prof. KRALLINGER (Breslau) understands by breed characters only exterior properties of the animal as colour, form of horns, size etc. (*i.e.*, essentially those characters which are classified by BUCHANAN SMITH in his group (b)).

In order to obtain some uniformity in what in this article will be considered as «breed characters», it should be kept in mind that «breed characters» can be only those which distinguish one breed from another and which are common to all animals within the group considered as a breed. Physiological characters, and particularly those responsible for quality, normally vary very much from one animal to the other within the same breed and are very often common to animals

belonging to different breeds. There may be some exceptions to this general rule, but generally these groups of characters are typical individual characters. Average values of characters have been established for certain breeds and these averages differ from breed to breed.

Whoever may be right in this controversial question of the definition of the term "breed characters", only such characters will be considered, in the following lines, as are covered by group (b) of Prof. BUCHANAN SMITH's classification.

General advantages attributed to "breed characters".

The opinions expressed seem to agree that the group of characters which Prof. BUCHANAN SMITH calls "fancy points" is given less and less consideration.

According to GRAVES, in the United States very few breed characters are considered in determining the eligibility of an animal for registration in a herd-book, but more emphasis is laid on breeds in the show ring.

ENGELER states that if producing qualities only are included under the term "breed characters" this term still has justification for existence. If the concept is limited to morphological properties it would be quite incomplete and unilateral and sometimes even in contrast to the very scope of practical animal breeding.

KRALLINGER expresses the viewpoint that where modern genetics are applied to animal breeding, all over-emphasized requirements as to breed characters are getting more and more limited and, citing some examples, he concludes that this trend of development seems not yet to be completed.

Even BUCHANAN SMITH, who defends in general the maintenance of breed characters, expresses the view that the importance of such characters have been over-emphasized in the past by some groups of breeders.

The time when great importance was attributed to the external characters of a breed lies thus already far behind us, but still there is no agreement as to how far such characters actually merit consideration.

BUCHANAN SMITH is of the opinion that these characters continue to have a distinct value and he specifies the following advantages in favour of what he calls "fancy points".

(1) "Fancy points" constitute a trade mark for type. This helps the breeder to sell his stock and assists the ordinary farmer in knowing what class of animal he is buying.

(2) In the event of crossing, it makes it possible frequently to analyse the parents of crossbred progeny. This is of particular value in the case of crossbred sheep for mutton production. By identifying the breeds to which the parents of the crossbred sheep belong, the purchaser can make a truer estimate of the carcass.

(3) A uniform type in a breed makes judging definitely easier. Where animals are coloured in a nondescript fashion, judging by the eye becomes more difficult. We agree that eye judgment is not of the supreme importance that it used to be, but we are of opinion that it is still important only in assessing the longevity of the animal.

(4) As the fourth reason, we may state that a breed that has uniformity in its outward appearance gives the same impression as the farm which is tidy.

GRAVES attributes to the breed characters "little or no economic significance other than that may be acquired in bringing about uniformity in the conformation and appearance of a breed".

KRALLINGER and ENGELER do not specify the measure of importance and the advantages they would attribute to these groups of characters. They however clearly recognize the importance of the latter as trade marks and mention that upgrading of breed characters generally coincides with the achievement of a higher standard of economic characters.

As one of the more frequently stressed advantages of the breed characters, their value as a *trade mark* must be discussed. A trade mark in general gives the buyer a certain guarantee as to the content and the intrinsic value of the merchandise he is buying. Do breed characters comply with this requirement? There is no doubt, that the real economic value of an animal is constituted by its producing qualities, either actual or latent, *i. e.*, residing in its germ-plasm transmissible to its offspring. It could not fairly be said, that external breed characters constitute a guarantee or even a limited guarantee for these values. In those cases where external characters can provide an indication of the producing qualities, such characters no longer belong to the group of "fancy points" under consideration.

The second advantage, put forward by Prof. BUCHANAN SMITH, in favour of the "fancy points", is consistent, but applies only to a rather limited group of animals, *i. e.*, to those animals used for *crossbreeding in connection with certain kinds of production*. In these cases, where crossbreeding is used in order to obtain animals particularly fitted for specific purposes as, *e. g.*, the crossbreeding of sheep for mutton production cited by BUCHANAN SMITH, it is still doubtful whether or not it is essential to know the breed of the animals crossed and if it is not, in this case as in many others, a question of the *production type* of the animals concerned. Type, however, is generally common to several breeds and therefore independent of the concept of breed characters. In this respect a statement of GRAVES is very significant: "All of our (American) breed associations have somewhat the same ideal for the conformation of their respective breeds". It seems probable, that the concept of type as given above and that of conformation as understood by GRAVES, cover somewhat the same idea. GRAVES, speaking particularly about dairy cattle, explains: "All of them (breed associations) are emphasizing the quality and shape of the udder and the size and the placement of teats".

It is therefore doubtful, whether the advantage stressed in favour of breed characters does not apply rather to the *type*. But even if there are breed characters useful in crossbreeding for production, these would not belong to the group of characters under consideration, as they would be of "obvious economic importance". Characters of economic importance, as also sex-linked external characters of certain poultry breeds, are exclusively used today for distinguishing males and females at a very early date.

It is also stressed that breed characters render *judging by the eye* easier and that, even if judging by the eye is not of the supreme importance that it used to be, it is still important at least as a means for assessing longevity.

There is no doubt, that conclusions on certain production properties and even on longevity may be drawn by judging the animal by the eye. But this judgment does not concern the group of characters, with which we are concerned here. It is not probable that colour and pattern or the shape of horns has any relation to production or longevity. This judgment by the eye probably applies much more to the characters classified by Prof. BUCHANAN SMITH under his group (a) as, obviously, characters connected with the animal's longevity are also characters of great economic importance.

The fourth point put forward in favour of breed characters is a purely *aesthetic point of view* and is stressed both by BUCHANAN SMITH and by ENGELER. Both compare the importance of these characters with attractive cartons holding merchandise, for which the housewife will pay a higher price than for articles offered in a less attractive form. This point of view is an essentially subjective one, and accordingly lies outside the scope of any objective discussion. It is a question of taste and as there are so many different breeds with so many different external characters within each production type of animals, the choice of characters by the breeders from an aesthetic viewpoint is very wide.

This aesthetic viewpoint will, of course, always maintain its importance and play its part in the choice of a buyer. But whether the importance of breed characters is purely aesthetic or if economic importance is to be attributed to them should be made quite clear.

Disadvantages of breed characters.

Several of the disadvantages of taking into account breed characters in modern animal breeding are very clearly pointed out by Prof. BUCHANAN SMITH, who admits that the «more practical person will feel that the disadvantages outweigh the advantages». According to BUCHANAN SMITH the disadvantages are as follows:—

(1) The existence of «fancy points» means that the breeder has more to select for. This, therefore, increases the difficulty of his breeding operations. It is comparatively simple to «fix» one characteristic in the homozygous state. It is more difficult to «fix» two characters simultaneously, and the difficulties increase as the number of characters, for which the breeder has to select increases.

(2) There is a danger that breeders might consider «fancy points» as their main objective, at the expense of the true economy of production.

The first of these two points is certainly of great importance. The main objective of breeding today is to develop the highest possible production without weakening too much the animal's resistance against adverse influences. It is well-known how difficult this task of the breeder is. Both production – even in the case of single purpose animals – and resistance to adverse conditions are controlled by a considerable number of genetic factors. Each additional factor to be selected for limits the number of animals at disposal for selection. Multiplicity of breed characters diminish, therefore, the possibilities of selection for production and resistance, and renders the task of the breeder more difficult than it actually is.

There is no doubt that the second disadvantage mentioned by BUCHANAN SMITH is also of great importance, but there is a third one which should not be neglected, although there is not yet any definite scientific evidence in favour of it.

What are generally called breed characters are very probably the results of the natural selection through many generations carried out in a given environment in which the group of animals, defined as a breed, live. At a time when the breeder did not yet strongly interfere with the development of the domestic animals and when there was less trade and movement of animals from one region to another, the natural environment of each breeding area developed the characters most suited to that environment and fixed them in the germ-plasm of the animals. While this is true in the case of most of the domestic animal breeds, there are some which have developed their characters in more recent times mainly by crossbreeding.

Since the time when natural selection and adaptation of the breeds took place, most of the groups of animals, bearing the characters so developed, have expanded far beyond the limits of their original home and habitat. Modern transportation has also displaced animals to regions far distant from those of their origin. The animals have come to live in environments absolutely different from those which brought about their respective characters. In most cases it is probable that these characters would gradually change in the new environment and that the original characters would be replaced by others more adapted to the new environment. There are many indications to prove such a trend. But this natural modification of characters is strongly opposed by the interference of the breeder who tries to maintain the original characters of the breed.

Among the many examples which could be given in support of this fact, perhaps the most striking is the cattle population of America. The whole American continent contains today, with a few exceptions only, cattle breeds of European origin. Most of these breeds are to be found in America under quite different environmental conditions than those of their native European countries. Herdbooks and breeders do their best to maintain the original colour and the original size of these animals, very often in spite of the continuous degeneration of those characters fostered by environment. A great deal of the effort of these breeders is spent in maintaining the breed characters and therefore in working against natural selection, acting in favour of adaptation. If the final results of this breeding activity are not disastrous, it may be due to the fact that in most of the breeding regions of America, climatic conditions are not extreme and breeders are making great efforts to increase production and maintain resistance against adverse factors.

In all cases where European breeds have been imported and bred in countries with extreme conditions, especially in tropical regions, the result has been a rapid and complete degeneration of original characters. In the majority of such countries, endeavours with European breeds have soon been abandoned. There is no doubt that natural modifications of original characters take place to a lesser extent through a slower development in less extreme conditions if the process is not outweighed by the breeder's efforts to maintain the original breed characters.

It is true that the breeders' efforts must always be in some way in opposition to the action of nature. If the breeder would not interfere at all with that action, the animals would within a number of generations return to some primitive type with consequent low production. But this interference with natural selection by the breeder should be limited to the characters which are really essential to the breeder's aim. The breeder should as little as possible impede the acclimatization of the animal to the conditions where the animal has to live. He should leave to nature the task of selecting the colour, the horns and the size which are most fitted for the respective environment. There is little doubt that this would be very much in favour of health and resistance against adverse factors and would reduce the breeders' efforts to maintain these properties by selection and facilitate their task to increase production.

It may be concluded that the views expressed by some authorities in animal breeding matters do not permit any final statement on the question put forward. Some advantages of breed characters are counterbalanced by some disadvantages. The problem, therefore, remains open to further discussion. There may be other advantages or disadvantages which have not yet been mentioned. The author of the present article will be glad to publish in this Bulletin any authoritative opinion which may contribute to solve this important and controversial question.

ST. TAUSSIG.

AGRICULTURAL SERVICES SUPPLIED BY RAILWAY COMPANIES (*continued*)

United States.

For many years the railway companies of the United States have carried on propaganda by means of agricultural trains or agricultural cars carrying educational material and speakers, usually in cooperation with the State Extension Services.

There has been no systematic development of agricultural trains in the United States, their use depending largely on the desire of a particular railroad to develop some phase of agriculture in the territory it serves. The general practice has been for the railroad to furnish the equipment and operate the train with the State Extension Service furnishing the exhibit material and speakers. With this policy there is, of course, no danger that enthusiastic railroad development agents will urge undue expansion in some line of agricultural production which the research and extension workers at the State Colleges believe to be unsound. Four railroads, serving different sections of the country, operate agricultural trains. The Northern Pacific operates from Minnesota westward to the Pacific coast in the States lying along the Canadian border; the Illinois Central from Chicago to New Orleans, extending westward from

Chicago through Illinois and Iowa, and southward practically the entire length of the Mississippi valley. The Baltimore and Ohio railroad serves the northeastern States from New York and Washington westward to Chicago and St. Louis. The Missouri Pacific operates from St. Louis westward and south-westward principally in the States of Missouri, Kansas, Arkansas, Oklahoma, Louisiana and Texas.

NORTHERN PACIFIC RAILWAY.

As an example of the propagandist activities of the various American railway companies those of the Northern Pacific may be regarded as typical. It has long been engaged in colonization work, which was placed under the charge of a general immigration agent appointed for this purpose about 1880. From time to time other work in the way of agricultural education was carried on, in addition to colonization, by special agricultural agents, by the land department, and sometimes by immigration agents. The agricultural development department, definitely grouping together colonization and agricultural services, was formed after the return of United States railroads to their private owners subsequent to the World War.

The first exhibit trains and cars were operated almost entirely with a view to colonization. During the last 15 or 20 years the object has been the agricultural education of farmers already settled in the territory served by the Northern Pacific line.

ESTABLISHMENT OF AN AGRICULTURAL SERVICE. — An Agricultural Service was established by the governing body of the Northern Pacific Railway Company in 1882.

OBJECT. — The object of the Agricultural Service was originally the encouragement of immigration and colonization. These activities were afterwards merged under the agricultural development department which, as mentioned above, now includes colonization and agricultural service. The aim in colonization is to put good land along the railroad into cultivation and keep it in cultivation. The special function of the agricultural service is propaganda and developing better agriculture within its area, supplementing the work of educational bodies and carrying it further than is possible for them: all with the idea of sustaining and increasing traffic. Both types of activity have worked out satisfactorily.

EXHIBIT TRAINS. — The Company has in the past operated exhibit trains and continues to do so. They are controlled by the agricultural development department. Single exhibit cars were used before 1900, but it was not until 1910 or 1911 that the first special train was introduced.

Trains operate at intervals of not less than two years over the same territory. There is no specified season: it varies in accordance with the type of train used and the subjects presented.

COMPOSITION OF AN EXHIBIT TRAIN. — An exhibit train is composed of from two to four or five coaches and sometimes—when farm machinery is being exhibited—several flat cars. Both special power and power from regular train service is used.

The staff usually consists of about 8 or 10 workers on large trains, including the electrician and caretaker. In addition there are state college or other specialists and the railway company's agricultural agents, who receive visitors to the train and answer questions. The coaches have somewhat the appearance of class-rooms. The seats are removed and false walls built on which are shown photographs, charts and drawings. Narrow tables are sometimes placed under the wall exhibits and along one side for the display of other materials, leaving sufficient space for visitors to move comfortably through the cars in a line.

ACTIVITIES OF THE STAFF. — The exhibit-train staff give lectures and demonstrations and also organise educational cinema displays. Supplementary meetings are sometimes held in local halls part of the day when an exhibit train is stopping in the neighbourhood.

PUBLICITY. — When an exhibit-train is to be operated news stories regarding the project are sent to daily and weekly newspapers, and to the agricultural press in the territory concerned, for three or four weeks in advance. Follow-up stories are written for papers of districts visited by the train or exhibit cars and published after the exhibit day. Posters are prepared, printed and distributed ten days in advance of the exhibit day, serving as a brief but forceful reminder. These are displayed in all public places where farm people are likely to see them. Either self-mailers or letter inserts are printed and mailed to large numbers of farm people, giving further details as to the meetings or exhibits. Country extension agents sometimes do some special advertizing of the exhibit on their own account. Local shopkeepers also avail themselves of an opportunity for advertizing their own wares, offering certain bargains, serving free lunch, etc., on the meeting day.

RESULTS. — Satisfactory results have been obtained, especially from the efforts to call attention to better farming practices. There can be no doubt that the train method of education is effective. The attendance varies from a few hundreds to several thousands, according to the type of meeting, nature of the exhibits, subject matter and territory.

BALTIMORE AND OHIO RAILROAD COMPANY. — This company, like the Northern Pacific, has an agricultural service of experts. It is known as the Agricultural Development Department and its principal efforts are directed towards efficient production, the improvement of agricultural practices, classification according to the United States standards and the improvement of marketing methods.

The operation of exhibit trains plays a relatively very minor part in the activities of the Agricultural Development Department, as there are never more than three during the year, each operating for about two weeks.

It is an interesting and significant fact that one issue of the magazine published by the Baltimore and Ohio Railroad is devoted solely to the Agricultural Department. Below are given the titles of articles contained in this Farm Number, some of which are written by the Company's agents:—

The Farmer and the Railroad.
The Railroad's Contribution to Drought Sufferers.
The Log of the B & O Soil Improvement Special.
A Wormy Pig Will Never Get Big.
Improving Farm Flocks.
More Profitable Potato Production in Indiana.
Alton Soybean Program aids Missouri Farmers.
Production Bred Sires Bring Profit to Dairy Farmers.
Better Beef Production.
Indiana Muck Crops Program is Effective.
Making the West Virginia Market Lamb Supreme.
Soil Erosion.
Good Apples Demand Good Packing.

A brief account of the special trains operated by the Baltimore and Ohio Company may be of interest. The most important were the following:

SOIL IMPROVEMENT SPECIAL. — This train was organized in cooperation with the State Agricultural Extension Service. Its object was to convince farmers of the value of lime. Several railroad passenger coaches were specially equipped, one as a soils-testing laboratory and lecture car, and the staff was composed chiefly of "soil doctors". In five days over 1000 soil samples were tested and written prescriptions given to the respective owners. Most of the soils needed lime and as each farmer was presented with the prescription he was invited to back his wagon or truck up to the train where he received, free of charge, enough liming material to conduct his own experiment.

The result was that within six years the tonnage of agricultural lime over the Baltimore and Ohio railroad was quadrupled.

SWINE SANITATION SPECIAL. — This train was operated by the B & O in cooperation with Ohio State and Purdue Universities through Southwestern Ohio and Central Indiana, 1927-28. It consisted of six coaches, including exhibit and lecture cars. In one car were two families of pigs (17 in all) forming a striking contrast, one being a model family fed on wholesome litter, free from worms and therefore fat and strong, while the other—reared on litter not approved by experts—were small and puny.

The technical aspect of pig-breeding and rearing was presented by experts of Ohio State.

POULTRY IMPROVEMENT SPECIAL. — This train was operated in collaboration with the Universities of Maryland, West Virginia and Illinois and the United States Department of Agriculture. It traversed the States of Maryland, West Virginia and Illinois.

This travelling poultry school, offering a full day's programme at each stop, included lectures on the important phases of profitable poultry production, and demonstrations of the means of identifying diseases common to poultry.

The "poultry improvement special" led to the formation of a large number of poultry clubs.

PUREBRED DAIRY SIRE SPECIAL. — The first Purebred Dairy Sire Special was operated by the Baltimore and Ohio Railroad over their Southern Indiana lines in September, 1923, when 46 purebred dairy sires were placed and an almost equal number of scrub or grade bulls removed from service. This train has since covered B & O territory in Indiana, Illinois, Ohio, West Virginia, Pennsylvania and Maryland, placing a total of 428 purebred dairy sires and 72 purebred heifers.

Prior to the operation of the Special, several weeks of preliminary work were spent in the counties to be visited, interviewing County Extension Agents, securing the cooperation of bankers, chambers of commerce, service clubs and creamery interests. The object of these activities was to bring to the farmers' attention the purpose of the train and the opportunity which was offered them of disposing of their scrub sires at beef prices when purchasing a purebred bull.

The success of this train was largely due to the cooperation of the Agricultural Extension Service in the states involved, the Dairy Cattle Breed Associations, National Dairy Council, farm papers, local business organizations and interested dairy farmers.

BETTER BEEF SPECIAL. — In April 1927 a Better Beef Special was operated through Western Maryland and the Shenandoah Valley of Virginia, in cooperation with the University of Maryland, the Virginia Polytechnic Institute, the Beef Breeders' Association and the National Livestock and Meat Board.

Since the main purpose of the train was to stimulate interest in the production of higher quality market cattle, one of the cars contained purebred Angus, Shorthorn and Hereford bulls.

A feature of the train was the women's lecture car, in which a woman member of the National Live Stock and Meat Board, assisted by State Home Demonstration Agents, dealt with the proper preparation of different cuts of meat.

In connection with the campaign for better beef production mention should be made of the 4-H Beef Club, organized in 1931 under the auspices of the B & O.

CONCLUSION. — Railway companies in the United States are privately owned and for the realization of their agricultural programme, therefore, require the support and cooperation of the interested States and the Federal Government—which has always been given. Farming has always been closely linked with the colonization movement and, consequently, with the growth of the railways.

The railway agricultural services are extremely active since each company has to contend with severe road competition and bases its policy on the

principle that the prosperity of a railway depends on the prosperity of the farmers who are served by it.

Railway agricultural propaganda has for its object the establishment of that system of farming most suitable for the rural communities along its lines. Dairy trains, soil improvement trains and pure-bred dairy sire trains; marketing of rams; demonstrations of the grading of livestock; model poultry-yards; establishment of "potato" and "calf" clubs; education of farm boys and girls:— all these are means to one end, the permanent establishment of an improved system of farming.

Yugoslavia.

RAILWAYS. — Transport in Yugoslavia is to a large extent by railway. When the railways were constructed the conformation of the land had to be taken into account, but the lines were laid as far as possible in accordance with the requirements of the time. Both as regards routes and distribution they are inadequate for present needs.

As is usual in mountainous countries, the proportionate mileage is low, the average being 1 km. of railway to 25² km. of territory. The ratio between number of inhabitants and length of railway is high. The greatest defect lies in the disproportion between the various regions:— in Voivodina, for instance, there are nearly 12 km. of railway per ha., in Slavonia 7, in Croatia 4, and in the other parts of the country only 2. In the neighbourhood of the German and Hungarian frontiers there is a closer network, connecting the principal towns with Vienna and Budapest.

Since the formation of the new Kingdom a great effort has been made to link together the various sections of the railway. A glance at a railway map of Yugoslavia will show that there are still very few lines in Serbia and Bosnia and that the interior of the country is not connected with the Adriatic ports, in spite of the fact that exports are for the most part directed towards these.

One of the greatest obstacles to the development of traffic between different parts of the country—even where there is most scope for the development of such traffic—is the existence of different gauges, which necessitates the transshipment of goods.

The steep hill-slopes, the numerous bridges and viaducts, and the sharp curves necessitated by the formation of the land, all combine to involve high maintenance cost and fuel consumption.

The most serious problems confronting the new regime are the readaptation of staff and material to the needs of the country, and the linking up of the various lines.

AGRICULTURAL SERVICES. — In 1932 the General Railway Board of the Kingdom of Yugoslavia set up an Agricultural Service which, after undergoing various changes, continues to function as a section of the Railways Administration.

OBJECTS. — The principal activity of the Agricultural Service is propaganda in districts traversed by the railways. Some of its aims are purely technical, and others of a more general nature.

The most urgent technical problem for the Service is the utilization of lands near the railway.

The work of the Service consists in:—

(1) Making known the existence of cultivable land near the railways and suggesting methods by which it may be most advantageously utilized.

(2) Testing and grading the soils.

(3) Destroying and preventing weeds along the railway line and on model farms.

(4) Draining marshy land, especially by the planting of suitable crops, particularly in ditches flanking the railway lines. Improving such land when drained.

(5) Planting selected fruit trees along the line, and near stations or railway premises. The choice of trees depends upon the natural conditions of the country and the demand of local and foreign markets. They are planted for the double purpose of increasing fruit production and the tonnage carried by the railway.

(6) Forming plantations to screen railway premises of all kinds.

(7) Forming plantations beyond the ditches flanking the line, or on the embankments, for the purpose of retaining the soil in position and preventing the accumulation of masses of snow by the interposition of natural obstacles.

(8) Forming plantations to serve as natural barriers either to prevent access to the line or to mark the boundary between land belonging to the Railway and that of private owners: such plantations always superseding wooden or iron fencing, the upkeep of which costs annually several hundreds of thousands of dinars.

(9) Planting trees, bushes and other melliferous plants for the development of apiculture.

(10) Establishing nurseries for the production of the plants required; breeding in their vicinity bees and poultry which can be utilized as propaganda in favour of apiculture and aviculture for railway employees and by the latter as propaganda for the farmers and peasants. Booklets of instructions are distributed free of charge.

(1) Establishing hothouses and selecting decorative designs for station gardens.

The activities of the Agricultural Services include also both direct and indirect propaganda for farmers. These will be described later.

WORK OF THE AGRICULTURAL SERVICE. — To give some idea of the work of the Service we supply a brief account of what was accomplished between 1931 and April 1, 1938.

PLANTATION OF FRUIT TREES. — Since 1931 fruit trees to the number of 230,000 have been planted in the 48 sections of all the regional divisions. According to the station-masters' reports, and judging also from inspections

of the fruit trees planted, it appears that about 85 % took root. The losses are due to trees being broken by the wind, broken down by heavy snow, burned by fires resulting from over-dry grass, or gnawed by animals.

At first a large number of fruit-trees were stolen. The authorities of the Banats were requested to take measures for the recovery of the trees and, if the thieves were not found, to reimburse the Agricultural Service at the expense of the commune in which the theft was committed. All the trees were bought from the nurseries of the Banats except a very few from private persons, and then only on condition that the same prices were charged. Since 1935 the trees have been obtained from the railway nurseries.

The care of the trees and the spraying against disease and pests serve as practical demonstrations to both railway employees and farmers, being accompanied by explanations as to the use of the brush, preparation of the mixture, etc. The importance of the campaign against insect pests and plant-diseases is made clear.

In some sections brushes are distributed. All are given the necessary chemicals, with written instructions. Saws, knives and shears are distributed free of charge by the Ministry of Agriculture to all the plantation staffs of the five divisions.

This practical propaganda has already produced satisfactory results among agriculturists living near the railway.

NURSERIES. — The railway authorities have long realized the necessity of having their own nurseries:—

(1) It was very difficult to procure fruit-trees and 30 or 40 different nurseries had to be dealt with, making it impossible for the representatives of the Agricultural Service to superintend the purchases. In spite of all complaints, therefore, the trees acquired were often of poor quality.

(2) The trees were frequently not of the variety indicated by their labels.

(3) There was a definite shortage of varieties which the Railway Department specially desired to propagate, as being required by foreign purchasers and resistant to long journeys.

Two nurseries of a total area of 5.5 ha., have been formed, one at the station of Mala-Krsna and the other at Batajnica. In addition to fruit trees, they supply melliferous and ornamental trees and bushes which serve a variety of purposes, viz., "camouflage", strengthening slopes, reafforestation, defence against snow drifts, the formation of natural barriers in place of the wooden or iron fencing formerly in use, etc. The number of trees in these nurseries in 1937 was:—

(a) at Mala Krsna:

13,000 fruit trees,

27,000 ornamental trees and bushes;

(b) at Batajnica:—

7,000 fruit trees,

150,000 ornamental trees and bushes.

In 1937 a hothouse was built at Batajnica for the production of roses and *Ampelopsis vaicii* to screen railway stations.

For the strengthening of slopes and for reafforestation the land belonging to the five divisions of the Railway Department has been planted with 1,329,000 plants.

POULTRY-KEEPING. — The Agricultural Service is working to improve poultry-breeding, which occupies an important place on Yugoslav farms, while the transport of eggs and poultry is a source of large profits to the railway.

During the last few years there has been a continuous falling-off in the export of these products. This is not due to any decrease in demand but to the fact that the unstandardized Yugoslav products cannot compete with those of Bulgaria, where standardization is compulsory.

The Agricultural Service's campaign is carried on through the medium of the railway staff.

Pamphlets are distributed giving instructions as to the hatching of eggs, breeding and preserving of poultry, improvement of breeds, etc.

The Ministry of Agriculture has shown its sense of the importance of the campaign and the excellent results obtained through the efforts of the railway staff by distributing through the agricultural service, during the years 1933-37, nearly 500 nests of pure-bred poultry, each nest containing one male and three female birds.

The distribution of eggs by the railway employees has led in many regions to an improvement in the breed, as purebred birds were thus obtained. At the International Poultry Show held at Belgrade in 1936 the railway employees had a special pavilion.

Out of the 232 cages exhibited, 192—i. e., nearly 80 per cent.—were awarded prizes.

These successes due to the activities of the railway employees testify to the soundness of the method; for the object in view to be fully attained, however, these efforts must be continued for many years, and on a larger scale.

APICULTURE. — In spite of favourable general conditions beekeeping is not much developed in Yugoslavia. The Agricultural Service has therefore begun a campaign on behalf of scientific apiculture.

Cooperative apicultural associations have been formed, having a total membership of 1000, with 10,000 modern hives, and for the last two years apiculture has been making definite progress.

The last Slav Apicultural Show, held at Belgrade, proved that the railway employees were excellent apiculturists. Special articles appeared in both the Yugoslav and foreign press in which they were highly commended.

There are courses of public instruction for railway employees, by arrangement with the Serbian Apicultural Society.

METHODS OF ACTION.

Direct Propaganda.

If by direct propaganda is meant personal contact between the agents of the Agricultural Service (engineers, etc.) and the farmers, the Service does not attach great importance to this. The formation of model holdings along the railway and the various plantations mentioned above are however a form of direct propaganda.

Indirect propaganda.

This is the method mainly employed. The Agricultural Service uses the railway employees as propaganda agents, the instruction given to them filtering through fairly rapidly to the rural classes as a whole. This system is most effective. The subjects in which they are instructed have already been mentioned; we will now describe the manner in which the instruction is given.

EXHIBIT TRAINS. — The Railway Administration instituted an exhibit train which operated throughout the country from 1931 to 1933, under the joint authority of the Ministries of Communications and of Agriculture. It was then decided that propaganda should be on a smaller scale, only one special coach being used.

This Agricultural Service coach operates throughout the year for about 6 to 10 days a month, especially at the periods when fruit is packed and loaded on the trains. The interior of the coach is arranged like a school. It is attached to passenger or goods trains. The staff of this instruction course consists of an agricultural engineer from the Railway Administration and two assistants, both of whom are experts.

The interior of the coach forms a large room with two entrances, capable of seating 45 persons. At one end are a lecturer's desk, a blackboard, and various prints and charts illustrating the subjects of the lectures. There are a toilet-room, an office and a gas-stove, heating arrangements, etc.

Instruction is given either in this coach or—if the audience is too large—in station waiting-rooms—or in any convenient place: garden, orchard, apiary, poultry-yard, etc.

Not only railway employees but schools and various local organizations are notified in advance of the arrival of the instruction coach.

The success obtained has been remarkable. The number of listeners (varying between 15 and 250) make it possible to discuss technical subjects with excellent results. Instruction is given twice a day, morning and afternoon.

So far 96 stations have been visited by this instruction coach.

In 1935 the Falcon (Sokol) Association of the Kingdom of Yugoslavia approached the Minister of Communications offering its collaboration. The offer was accepted and members of the Association, both singly and in groups, were

present at the first of the instruction given; some travelled from 25 to 30 km. in order to attend.

The instructions were mimeographed and distributed free among the audience.

FRUIT COACH. — Foreign markets for Yugoslavian fruit were being lost owing to the irregularity of the picking and the unsatisfactory packing. The Agricultural Service decided on a campaign concerning the different operations of this nature, such as the gathering and handling of fruit.

The help of experts from the Central Hygiene Institute was obtained and during the year 1933 the Fruit Coach visited, in the Belgrade Division, 24 of the principal stations for fruit exports on the normal-gauge line and 12 stations on the narrow gauge line, in the Sarajevo Division. A special coach was provided, containing all that was necessary for demonstrations of gathering, sorting and scientific packing of fruit. All necessary explanations were given to the growers and practical demonstrations were made.

A striking feature was the rapidity with which the growers applied their newly acquired knowledge. The attention of the peasants was specially drawn to their mistakes not only in the mode of gathering the fruit but in taking it from the orchard to the station already packed. In this connection pamphlets issued by the Agricultural Service and booklets prepared by the Central Hygiene Institute and the Serbian Agricultural Society were distributed.

The best growers received implements for fruit-gathering intended to serve as models and facilitate demonstrations.

This propaganda campaign showed the necessity of premises in which fruit could be protected from sun, dust and rain during the time between arrival at the stations and loading on the train.

AGRICULTURAL INSTRUCTION AT THE RAILWAY SCHOOL AND INSPECTORS' COURSES. — A word may be added regarding the agricultural instruction given to railway employees.

The Ministry of Agriculture attaches the utmost importance to the agricultural instruction given at the Railway School and at inspectors' courses. It has issued a large number of agricultural publications for distribution among those who attend either the school or the classes.

CONCLUSION. — The establishment of an Agricultural Service by the railways of the Kingdom of Yugoslavia has undoubtedly had a great influence on the agriculture of that country. The propaganda carried on by the railway employees has achieved its object, and has diffused among the agricultural classes new ideas which will enable them better to adjust their production to requirements and will help to promote that better "orientation" of agriculture, which is a problem of the first importance for every country.

(To be continued)

A. BOUSSINGAULT.

MISCELLANEOUS INFORMATION

THE PROGRESS OF AGRICULTURAL SCIENCE IN INDIA DURING THE PAST TWENTY-FIVE YEARS. — This historical sketch of Indian agriculture during the past twenty-five years, has been published by the Indian Science Congress Association (Calcutta, 1938). It will be valued by all those interested in agricultural history. The origins of the Provincial Departments of Agriculture, the Agricultural Research Institute, Pusa (now at New Delhi), the Indian Central Cotton Committee, the Imperial Council of Agricultural Research, the Indian Central Jute, India Lac and Coffee Cess Committees are described, and the part these organizations play in guiding and financing agricultural research. This is followed by an outline of the advances made in India in the various branches of agricultural science particularly in plant breeding, crop diseases and pests, agricultural chemistry, agricultural engineering, statistics in relation to agricultural experiments, etc. It is not possible here even to summarise the principal achievements of workers in the different parts of India, but it may be said that due recognition is given to their contributions, which are increasing in number and in ever wider fields. Recent history is notoriously difficult to write but the author, Dr. W. BURNS, admirably summarizes the main trends of progress and also — thanks to his long experience of Indian conditions, and his clear and comprehensive vision — is able to make some forecasts of scientific and practical importance. The most valuable of these regards the large-scale organization of effective propaganda machinery, and of agricultural economics, with a view to showing how the lot — physical and spiritual — of the cultivator may be improved and the full benefit of scientific investigation made available to him.

G. T. K.

CEREAL SELECTION IN TUNISIA. — In the *Bulletin du Service de l'Agriculture* (Tunis, 2^{ème} trimestre 1938, pp. 157-228), the Bureau for Agricultural Experiments and their Popularization in Tunisia publishes a long report on cereal selection and experiments.

1. — *Soft wheats.*

Methodical research is being carried out on unimproved native disease-resistant wheats intended to replace the bread wheats now in use (chiefly *Mahon*).

In 1936 and 1937, 161 varieties of soft wheat were introduced from various countries; among these were: *Thatcher*, known for its rust-resisting qualities; *Pusa 120*, also reported as resistant to the various *Puccinia* spp. and an excellent bread wheat; *Gefir*, a strong French wheat, and finally, *Manitoba No. 1*, and *Hard Manitoba*, prototypes of Canadian strong wheats. Hybridization has been directed towards the improvement of baking qualities, productivity and resistance to rust and lodging. The best lines of *Florence* × *Aurora* have been selected for crossing on account of their productivity and their excellent bread-making qualities; other strains selected are *Pusa* × *Florence*, productive and resistant to lodging, *Damiano Chiesa*, famed for its high yield and its short, strong straw, and some Kenya wheats reported as being rust resistant, and several Algerian varieties which have proved satisfactory in Algeria. Two or three strains of *Florence* × *Aurore* have

given remarkable results both in field and Extensimeter test and will be extensively grown by the Botanical and Agrarian Service. The final results of these experiments show that selection with the variety Florence \times Aurora is still very efficacious, but that, on the contrary, with the Pusa and Florence strains, it is not so, and the majority of lines have therefore been eliminated. The Manitoba, Garnet and Marquis wheats have imparted their strength to their descendents.

2. — *Hard wheats.*

Tunisia should be able to produce two groups of hard wheats ripening at different periods, with indigenous or very productive wheats in each group, all disease and rust resisting with light-coloured, translucent grains. Selection as practised at present is directed towards this end.

In 1936 and 1937, forty-eight varieties were introduced from Algeria, Morocco, Greece, Italy, Egypt, Uruguay, etc., for use in cross-breeding with Tunisian late wheats, in order to obtain fixed strains of wheat with the economic qualities and morphological appearance of the parent wheats.

Selection experiments have shown that a single strain of the hybrid M a h m o u d i \times P y r a m i d a l e 35, No. 209/38/c is suitable for large-scale cultivation, as it grows well and ripens very early, like the earliest soft wheats. The productive qualities and fine appearance of the grain of Palestine wheat No. 847/1 were confirmed: O u e d Z e n a t i especially gives a grain as clear as the B i s k r i breed, but fuller.

3. — *Barley.*

In 1936-37, 34 varieties of barley were introduced from Algeria, Poland, Uruguay, Australia, etc. No cross-breeding was practised in 1937, the material collected not being sufficiently studied.

The varieties introduced were pedigreed to obtain homogeneous strains, for the creation of which 150 types were selected. Experiments were made with breeds from M a r t i n barley and two-row barleys introduced during the last few years. So far no definite results have been obtained from the first experiments.

4. — *Oats.*

Only one variety was introduced into Algeria and subjected to a preliminary test. Observations were made with 11 varieties kept over from the previous season. Out of 720 strains sown in 1936, 23 were retained.

The Agricultural Service maintains a collection of growing cereals of various species including 300 soft wheats, 245 hard wheats, 58 miscellaneous wheats, 106 barleys and 27 oats.

A. P.

SEVENTH INTERNATIONAL POULTRY CONGRESS. — The 7th International Poultry Congress and Exhibition will be held in Cleveland, Ohio, from July 28 to August 7, 1939.

As in the case of former Congresses, the 7th International Poultry Congress will deal with all branches of poultry and the industries connected therewith. More than 60 countries are expected to participate officially.

G. R.

LEACHING EXPERIMENTS WITH BORATES. — The suitability of water soluble borates (optimum dose corresponding to 4.5 kg. of boric acid per acre, with or without a thinning agent such as sand, fertilizer etc.) for the control of Heart rot of beets and mangolds, Brown rot of swedes and turnups, and other boron deficiency diseases in crop plants, has been investigated at length. Fear has been expressed, however, in certain quarters that the continued use of boron may slowly result in accumulation of the element in the soil and so be harmful. The percolation experiments carried out at the Hamburg Agricultural Experiment Station by C. KRUGEL, C. DEYSPRING and R. LOTHAMMER with seven soil types, using superphosphate mixed with various boron compounds (« Granulated borax », « Borax lime », *Ca-boracite*, etc.), indicate that the residual boron unused by plants amounts approximately to one-fifth of the optimum dose used, and that owing to rainfall, leaching varying between 47 and 94 per cent. occurs in all the seven types. This means that in practice no harmful accumulation of boron is likely to take place.

G. T. K.

XIIth WORLD'S DAIRY CONGRESS, VIENNA, 1940. — At the closing session of the XIth World's Dairy Congress, held in Berlin on August 28th, 1937, a resolution was passed that the next Congress should be held in Vienna in 1940. This resolution was accepted by the German Government and by the President of the International Dairy Federation. The Congress will therefore take place about the end of May or beginning of June, 1940, in Vienna, and will be organised by Herr. R. WALTHER DARRÉ, Reich Minister for Food and Agriculture and Reich Peasant Leader, who will, in due course, issue invitations stating the exact date of the Congress.

Scientific Subjects. — The number of subjects discussed will be strictly limited. They have been divided into four sections.

SECTION I. — *Mountain and Alpine Dairying.* — For the first time Section I of the Congress will devote attention to one specific subject. In view of the mountainous character of the Eastmark, Mountain and Alpine Dairying has been chosen. As most of the important dairy countries have mountainous regions, this topic should prove of great interest especially as many problems still remain to be solved.

SECTION II. — *Reports of the International Dairy Federation.* — Section II will be devoted exclusively to the reports of Committees of the International Dairy Federation. In general no papers may be contributed to this section. Suggestions, however, may be made to the chairman of the respective committees who will consider their possible utilisation.

SECTION III. — *Important Questions of General Dairying.* — Section III will deal with questions of importance in General Dairying; with a view to limiting the scientific programme, only two subjects will be discussed.

SECTION IV. — *Tropical Dairying.* — Discussion of the most important problems in tropical dairying, according to the programme of previous congresses. Special topics for discussion will be detailed in this fourth Section.

Notice of Papers. — To prevent duplication and overlapping of papers, notice of intended papers must first be given to the National Committee of the International Dairy Federation, stating the section, question to be discussed, and the proposed title of the paper for examination. In case such National Committee does not exist, papers should be sent direct to the Secretary General of the XIIth World's Dairy Congress. With regard to papers from Germany, the Congress Management Committee will communicate direct with the authors.

In any case, notice of papers must reach the office of the Secretary General, XIIth World's Dairy Congress, Hafenplatz 4, Berlin SW 11, not later than February 1, 1939.

Exhibition. — An exhibition with special regard to Mountain Dairying and a competition for butter and cheese will be arranged on the occasion of the Congress.

Excursions. — In view of the special feature of the Congress, excursions will be made to the mountainous regions of the Ostmark, Bavaria and Sudetenland, etc.

For further details, write to the Secretary General of the XIIth World's Dairy Congress, Hafenplatz 4, Berlin SW 11.

Subjects for Discussion.

Section I. — Mountain and Alpine Dairying: — Topic 1: Mountain Climate and its Influence on Milk Cattle, Milk and Milk Products. — Topic 2: Mountains as a Source of Fodder Supply for the Production of High Quality Milk and Milk Products. — Topic 3: Milk Cattle of the Mountains (Cows, sheep, Goats). — Topic 4: Dairy Husbandry in Mountainous Regions: a) Technical Aspects; b) Business Management.

Section II. — Reports of the International Dairy Federation: — 1. Cheese. (Chairman: Dr. A. J. Swaving, Westeinde 58, Voorburg, The Netherlands). — 2. Milk Powder. (Chairman: His Ex. Dr. F. E. Posthuma, The Hague, The Netherlands). — 3. Hygienic Milk Production. (Chairman: Prof. C. Gorini, Città degli Studi, Via Orcagna 4, Milan, Italy). — 4. Technical Aspects of Dairying. (Chairman: His Ex. Dr. F. E. Posthuma, The Hague, The Netherlands). — 5. Special Commission (A) on Production and Central of Milk (Chairman: Ministerialrat Dr. K. Wegener, Wilhelmstrasse, 71, Berlin W 8, Germany). — 6. Special Commission (B) on Standardisation of Bacteriological and Chemical Analysis of Milk Products. (Chairman: prof. R. Burri, Manuelstrasse, 93, Berne, Switzerland). — 7. Other subjects dealt with by the International Dairy Federation.

Section III. — Important Questions of General Dairying: — Topic 1: Longkeeping Butter: a) Milk and Cream for Production of Longkeeping Butter: Quality Requirements. b) Technical Aspects of Production, Storage and Transport of Butter. — Topic 2: Reduction of Cost of Dairy Equipment.

Section IV. — Tropical Dairying.

E. G.

BOOK NOTICES *

SALVADORI, M. *La colonisation européenne au Kénia*, Paris, 1938, 224 pp.

[The problem of European settlement in tropical countries, especially at high altitudes, is one which has to be met by a number of colonising nations. The history of attempts at white settlement in hot countries – attempts which have been made more frequently than is often supposed—deserves therefore the most careful study.

The A. has brought together with great care and complete impartiality all statistics and reports relating to Kenya, where as a British colony the definite establishment of European farmers on the high tablelands was planned from the close of the century. After the world war, more particularly, a large area in the highlands of Kenya was taken up by a number of settlers for coffee and tea planting, wheat and maize growing, or for mixed stock and arable farming. There is now a large amount of material available based on the experience of some thirty years, from which the A. draws certain conclusions. The A. has summarised the points of view: of: (a) Kenya; (b) the settlers; (c) the natives; (d) the Asiatics and (e) the United Kingdom.

(a) The capital brought in by the settlers has not only met all deficits, but has made practicable a rapid economic development of the Colony. The main wealth of Kenya now consists in the plantations of coffee, sisal, tea and sugarcane, which owe their existence to the enterprise of the settlers. The quality of the native-owned live-stock has been improved by crossings with the European animals brought in by the colonists. The main disadvantage of European settlement arises from the tension due to the fact that Europeans and Africans are living side by side on the same territory; and also Europeans and Asiatics (Indians).

(b) For the settlers themselves, the colonisation has not—with some few exceptions—been profitable from the economic standpoint. Farms and agricultural undertakings, in which more than £ 32,000,000 have in all been invested, are not now worth more than one third or two-fifths of that sum.

A large number of settlers have already left the country, and others have seen that the climate does not suit either themselves, their wives or their children. (The book contains some very interesting observations on the influence of the climate of the highlands on the Europeans who live there for a number of years).

Settlers often find that lands which they have taken up are not worth farming owing to their poor yield.

* Under this heading are included short synopses of books received for review.

(c) For the natives the disadvantages of colonisation have been many. Vast tracts of the most fertile lands which they occupied before 1902 have been expropriated, and in addition lands have been alienated to Europeans which would have been required by the natives as their numbers increased. As they can be satisfied with a low yield, natives farm poor lands which the Europeans are obliged to leave uncleared.

A new class of natives has come into existence «squatters» or seasonal workers, without land of their own.

Very heavy taxation, sometimes as high as 50 per cent. of their incomes, are imposed on the natives so as to provide for the requirements of the European population. They are moreover forbidden to grow certain crops which might ensure them a higher level of living.

(d) The political and economic influence of the Indians would undoubtedly be much greater, if the settlers had not done everything to keep them in an inferior position. In consequence of the decision to encourage the establishment of Europeans, a scheme favouring Indian settlement was abandoned.

(e) It is possible now for about 15,000 persons of British origin to live on the incomes they draw from Kenya; these include not only settlers, but also Government officials, traders, manufacturers, whose numbers have decidedly increased, in consequence of the policy of white settlement.

According to certain figures quoted by the A., it would appear that from the financial point of view, the United Kingdom has done well out of Kenya. Kenya loans constitute fairly advantageous investments for British investors. Investments in European agriculture were profitable during periods of prosperity such as that of 1924-29, but between 1921 and 1923 or between 1930 and 1934 heavy losses have had to be met.

The trade between the United Kingdom and Kenya is of small importance as compared with the total trade of the United Kingdom. The only Kenya product which has acquired some importance is coffee; in 1935, 46 per cent. of the coffee imported into the United Kingdom came from Kenya.

From the economic standpoint there is no advantage for Great Britain in buying from Kenya rather than from other countries, since prices of the principal Kenya products are fixed on the basis of prices of the same products in the large producing countries.

W. B.

Offices Météorologiques du Monde avec leurs Directeurs et Etats-Major, leur attribution de service et leurs publications. Utrecht 1938. Imprimerie Brookhoff N. V. (Secrétariat de l'Organisation Météorologique Internationale, N° 2).

[International scientific collaboration is often seriously hampered by ignorance or inadequate knowledge about existing technical institutions, which prevents mutual contact of persons whose interests lie in the same direction. Publications remedying this situation are therefore of great value, this is eminently true of the directory which has just been published by the International Meteorological Organization and which contains—on movable slips—authentic and recent information in respect of the official

meteorological services as well as of the independent institutions of all the countries of the world. The name, address, scientific staff and functions of each administration and institution are shown; the titles of their periodical publications are added. The directory will be kept up to date by means of supplementary slips. This international register of meteorological services is of direct interest to farmers, as the majority of the offices deal with agricultural meteorology].

S. v. F.

Prof. ALESSANDRO BRIZI, *Segretario generale dell'Istituto, Direttore responsabile.*

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AGRICULTURAL SCIENCE AND PRACTICE

CANDELILLA: A TECHNICAL AND ECONOMIC STUDY

In view of their many industrial uses, the cultivation of vegetable waxes has always been a matter of importance. Carnauba wax is well-known as a valuable product of Brazil. Candelilla wax, however, is not so well known and the International Institute of Agriculture has pleasure in publishing an interesting technical and economic study on the subject submitted by Señor Miguel GARCIA CRUZ.

Señor CRUZ, in his study, emphasises the importance of this *Euphorbia* in the exploitation of the arid, semi-desert regions of Mexico. He devotes several pages to the botanical description of the plant and its geographical habitat and suggests methods of intensifying production. He discusses at length the possibility of improving the methods in use for extracting the wax. After describing the chief types of wax which compete with Candelilla wax, Señor Cruz proceeds to discuss the economic and commercial aspects of this product and concludes with the statement that by improving the process of extraction and eliminating speculation it ought to be possible to create a regular market for Candelilla wax, which should be able to compete with other vegetable waxes without difficulty.

The following pages contain a very comprehensive survey of a product of which but little is known and the Institute takes this opportunity of thanking the author for submitting a treatise, which will surely be of interest to the readers of this Review.

CHAPTER I. — PRODUCTION

(a) BOTANICAL CHARACTERISTICS.

The Candelilla belongs to the family of Euphorbiaceae and is known by the scientific name of *Euphorbia cerifera* Alc. Its characteristics are as follows: a perennial latex-yielding plant, with branching, membranous stems, slightly flexuose, cylindrical in form with constrictions; the stems are glabrous and of a glaucous green colour. The plant grows to a height of between 30 centimetres and 1.30 metres, the average diameter of the stems being 5 millimetres.

The leaves are isolated and distinct; they are so small that it is difficult to distinguish them on the young shoots; they soon drop off when the stem becomes old, giving the plant the appearance of having been stripped. The leaves on the young shoots are brownish-red in colour but, as a result of a growth of small white hairs, they take on an ashen tinge on the adult stems.

Groups of delicate lanceolate leaves grow on the extreme tips of the branches. The axillary inflorescences consist of uniparous cymes with very small caducous corollae which are villose and coloured; not all the cymes are complete. There are male and female flowers. The fruit is small and stalked. The whitish colour of the stems is due to the large quantity of wax contained in the outer covering.

On examination, the plant shows a thin film of wax covering the stems and sometimes even forming tiny rods like hairs. The wax is found mostly

on the surface of the stems and falls away if the plant is roughly handled, particularly if the plant is dry. Wax is also found in the outer cells of the plant and exudes from special pores. This explains why a higher yield of wax is obtained in laboratories where the plants are treated with a neutral solvent than in industry where solvents are not in use.

(b) CHARACTERISTICS OF THE WAX.

The chemical and physical properties of Candelilla wax are as follows:

Density at 15°C	0.9320
Index of saponification	1.4545 to 1.4646
Saponification figure.	35.0000 to 36.5000
Iodine index	14.4200 to 20.4000
Non-saponifiable substances	76.7000
Hydrocarbons	45-52-70

Chemical analysis of a wax obtained from the northern region gave the following results:

Moisture.	1 %
Wax	423 %
Resins	14 %

The properties of the wax vary slightly in relation to the time of year at which the plant is picked and to the age and origin of the plant.

Generally speaking, winter wax has a higher melting point, greater density and a lower content of volatile acids than summer wax.

The extraction of Candelilla wax with various solvents has been tested both in Mexico and abroad; the most important of these solvents are: turpentine, amyl alcohol, ethyl alcohol, methyl alcohol, ether, sulphuric acid, benzene, chloroform, acetone, petroleum, petrol, petroleum ether and carbon bisulphide.

Comparative tests have been made with certain solvents on 20 grams of Candelilla wax, the results being as follows:

	Wax %	Resin %
Turpentine	5.35	24.54
Petrol	5 —	24.20
Alcohol	4.50	22.85

The great importance of these solvents will be realized and the relative efficiency of the most suitable processes of extraction will be explained when the methods of extraction are discussed.

(c) CLIMATE AND SOIL.

In the regions where the Candelilla grows, the climate is so severe that it would not permit of the growth of any other serviceable plant. The limits of the zone where this plant grows coincide with the arid and semi-arid regions

of Mexico. The climate is that of a desert, with heat like that of the steppes or else of the Sahara.

Extremes of temperatures are found in the steppe type of climate. Data collected at the meteorological stations in these regions show the following main climatic characteristics:

Station	Average monthly temperature in ° C		Average annual rainfall in cm.
	Minimum	Maximum	
Cuatro Ciénegas	13.0	38.60	162
Sierra Mojada	13.4	28.90	331
Monclova	12.0	28.70	353
Sabinas	10.0	35.60	553

It should be observed that the figures given above are not absolutely applicable to the Candelilla producing regions, as the meteorological stations are situated in desert oases or in places where natural conditions are more favourable and permit of the growth of enough vegetation to encourage the establishment of small rural communities. Generally speaking, the Candelilla is found where the annual rainfall is considerably lower than 100 millimetres and consequently it may be said that the plant grows under the minimum natural conditions required for growth particularly in so far as moisture is concerned. The exploitation of the Candelilla is therefore very important for the agricultural future of the large tracts of desert land in the north of the country.

The types of soil on which this plant grows vary considerably. The Candelilla is mostly found on sandy soil which is generally poor in humus. Chalky soil rich in potash would be the most suitable for the growth of the plant but would have the disadvantage of producing too luxuriant foliage yielding very little wax.

(d) PROPAGATION OF THE PLANT.

The propagation of the plant is very difficult, the seeds being rare and hard to gather. Nevertheless, in the natural state a large number of plants are produced by seed germination.

Many different types of plant propagated at random in the natural state can be made to multiply most satisfactorily with human aid. But certain difficulties arise in the case of the Candelilla in spite of the plant's great vitality; first, economic difficulty of the high cost of collecting the seed, and secondly, the technical difficulty of sowing seed in soil which is so arid that man refuses to settle there. Moreover, the artificial propagation by seed of the Candelilla does not effect any saving worthy of mention.

With enlightened treatment by cultivators, taking due count of the many requirements of the plant, it will undoubtedly be possible to obtain abundant

propagation by cuttings of different kinds and by taking advantage of the small amount of rain which falls each year.

Till now there has been little inducement to cultivate the Candelilla as there are still vast areas where the plant grows wild and which have not yet been exploited. Nevertheless, the exploitation of the natural reserves is limited by a number of factors which set bounds beyond which it is impossible to advance and which oblige farmers to return to the areas already exploited. If there is a sufficiently large demand for the wax, the best land will be exhausted and will have to be left for a certain period in order to recover.

Undoubtedly the exhaustion of plants in the wild state will make it necessary to have recourse to artificial propagation, and the exploitation of the Candelilla will become generative instead of purely extractive when the natural reserves have become insufficient to meet market requirements.

(c) FACTORS AFFECTING THE GROWTH OF THE PLANT.

The climatic conditions of the desert area producing the Candelilla are certainly not the most suitable for the growth of the plant; for in regions where rain is heavier and the terrain more favourable, the Candelilla produces a more abundant growth, but there is a decrease in the wax content. It may therefore be stated that the industrial value of the Candelilla is in inverse proportion to the development of the plant, *i. e.*, to the fertility of the area where the plant grows, and there must be an optimum ratio between the two, giving a maximum yield. This does not imply that the present areas where the Candelilla grows wild are the best. The conditions under which the plant gives a maximum industrial yield could easily be verified by establishing experiment stations.

There are a number of other factors which have a considerable influence on the growth of the plant and are connected with the methods of exploitation employed. Among the favourable factors are winter rains which enable a partial regeneration of a large number of plants in a dying condition.

The plant bears fruit from May to July and seed germination is favoured at that time by the first summer rains. Lack of rain and severe winters, at the time when exploitation is most intense, are unfavourable for the regeneration of the plants and contribute to their destruction. Although the Candelilla is of no use as fodder for cattle, the plants are often damaged and trampled by the livestock frequenting ponds near the exploited fields.

Goats enjoy browsing on the young shoots in the springtime and this is one of the principal causes of destruction apart from the action of man.

Candelilla exploitation and the rearing of livestock have the same requirements as regards water, but otherwise the two industries are injurious to each other and there is a tendency to separate these two forms of agriculture.

There are several insects which lay their eggs on the young stems of the plants, the larvae destroying the tips of the branches; nodules like capsules are thus formed on the tips, and all branches attacked by these insects either die or fail to send out any young shoots until the following spring.

At the historic farm of Guadalupe in the commune of Ramos Arizpe, Coahuila, it was observed that all the Candelilla fields were infested. The unexploited fields were more seriously affected than the others, exploitation contributing indirectly to the destruction of the pests as the larvae are killed in the process of boiling the plants to extract the wax. When exploitation is most intense, however, the disease remains latent and its destruction by the above method is practically nil, or in other words exploitation merely contributes to the reduction of the disease at the least suitable period for extraction, *i. e.*, when the plant puts out its first shoots.

At the present time it is impossible to organise a campaign against this pest, since the exact extent of the area attacked is as yet unknown. It is therefore of primary importance to carry out studies from every standpoint in the hope of discovering an effective means of combating the pest.

The present method of exploitation is unsatisfactory and is probably the cause of the destruction of the plant since, as will be seen later, the exploited fields can only recover to a certain extent.

(f) GEOGRAPHICAL AREAS.

The Candelilla grows wild in various States of Mexico but is utilised industrially only in the following States: Coahuila, Nuevo León, Chihuahua, Durango and Zacatecas.

Candelilla reserves are to be found in many other States of the Republic, but for various reasons it has not been possible to exploit them, partly because of the small wax content of the plants and also because of the very unsatisfactory methods of extraction adopted. The following are the chief areas where the Candelilla grows:

Cohuila	Jalisco
Nuevo León	Sonora
Chihuahua	Baja California
Durango	Puebla
Zacatecas	Oaxaca
San Luis Potosi	Hidalgo
Tamaulipas	

Candelilla is thus distributed throughout the entire area of the Republic, and sufficient importance has not yet been attached to its exploitation.

Candelilla is exploited only in the five States at the head of the list, while in the others it constitutes a potential source of wealth which can be realised when increasing demand on the market creates favourable economic conditions for the extension of the area exploited. An increase in production can be obtained by various methods, and especially by the exploitation of the plant through the introduction of more satisfactory methods of extraction, by the construction of roads and railways, by the creation of reservoirs, etc.

(a) AREAS EXPLOITED.

The few statistics available concerning the production of Candelilla wax make it possible to give an idea of the distribution of the exploited areas. These statistics may be summarised as follows:—

TABLE I. — *Production in producing States of Mexico from 1933 to 1936.*

States	1933	1934	1935	1936
Coahuila	793,563	231,343	814,323	2,577,631
N. León	155,663	64,824	137,863	1,303,470
Durango	—	2,110	648	—
Chihuahua	—	—	—	152,115
Zacatecas	—	1,406	—	67,226
Total production . . .	949,226	299,683	952,834	4,100,000

It was found impossible to obtain exact figures concerning the total *value* of Mexican production during 1935 and 1936. An indication of the amount may, however, be obtained from the fact that the value of production in the four principal States amounted to 590,000 pesos in 1933 and to 190,000 pesos in 1934.

The exploited areas vary from year to year. Candelilla was exploited in the State of Chihuahua as long ago as the beginning of the present century but exploitation was interrupted for a long period and only renewed in 1936.

(h) ESTIMATE OF PRODUCTION IN MEXICO.

A study of the production and export figures for Candelilla wax often shows that exports are greater than the production estimates. Since there are no reserve stocks in the country it is obvious that the figures supplied by the Forestry Department are far below the actual quantities produced. It is therefore impossible to give exact figures.

(i) CHANGES IN AREAS EXPLOITED.

It has already been shown how the exploited areas vary from year to year as the result of exhaustion of the fields. In 1933, for instance, the two municipalities which produced the greatest quantity of wax were Cuatro Ciènegas and Monclova, but in the following years they are not even mentioned as having produced wax.

Many similar examples of the shifting of exploitation could be given. These changes are caused by the exhaustion or the regeneration of the wild growth, by the labour supply, the state of the roads, the demand for wax, etc. Undoubtedly also the productive capacity of the areas under consideration and labour conditions affect these variations considerably.

When the crop season appears to be good, or when the population has other occupations, the inhabitants prefer other crops or other forms of labour involving less toil and more profit, with the result that the production of Candelilla wax declines. When the crop situation is unfavourable, however, the inhabitants then try to fill the gaps by exploiting the Candelilla with a consequent increase in wax production.

These economic considerations naturally affect the shifting of the areas exploited. Generally speaking, however, it is the exhaustion of the plant which is the principal cause of these changes, making a lapse of three, four or even five years necessary between the periods of exploitation, so that partial recovery of the plants may enable a profitable renewal of exploitation.

(j) PROSPECTS OF EXPLOITATION OF NEW AREAS.

In those States where the Candelilla is at present being most intensively exploited, there are still vast areas where the plant grows without being utilised owing to lack of water. Señor Raoul MADERO, in an article dealing with this subject, states that water is one of the essential factors in the exploitation of the Candelilla plant. This plant, he says, may be found in arid regions entirely without water, and where it is often impossible to find water even in the subsoil; in other cases the soil is so permeable and the flow of water so slight that it is impossible to consider the possibility of building reservoirs or dams.

Since water is, as has already been stated, one of the essential elements for exploitation, it is interesting to know at least approximately the quantity required.

Experience has proved that 35 litres of water are required for the production of one kilogram of crude wax; with the addition of the water required by the workers and transport animals, the total amount required becomes 70 litres.

It has already been seen that the exploitation of the Candelilla is carried on in areas supplied with water adjacent to the pastures of stockbreeding farms where reservoir and cisterns have been constructed and where spring water is available.

Almost all the work carried out in connection with farm water supplies is done in order to provide water for livestock and only as a secondary consideration for the exploitation of the Candelilla. This industry has therefore had but slight influence on the construction of noria pumps and cisterns; the wax industry has almost always been subsidiary to other more stable and permanent industries such as the rearing of livestock.

The best quality plants are not as a rule utilised in the exploitation of the Candelilla because, as has already been stated, these plants grow in the least favourable regions where it is difficult to find sufficient water for exploitation.

The cisterns built for the use of stockbreeding farms will, of course, serve indirectly for increasing the exploited areas, but such expansion will not be extended to the best regions because the areas most suited to the Candelilla do not contain pastureland and also because, as has already been said, the optimum conditions for exploiting this plant and for stock raising are not exactly the same.

Each wax factory is situated at a certain distance from reservoirs and extraction can only be carried out in cases where transport of the raw material can be effected at an economical cost. A rise or fall in the price of wax immediately results in an increase or a decrease of the area exploited. If the market demand continues to rise, there is no doubt that the factories will extend their radius of action, but this will always be limited by the cost of transporting the raw material from the point of production. The Candelilla reserves are extensive, however, and are capable of producing much larger quantities than are at present in demand.

(b) EXHAUSTION OF THE PLANT.

The production of Candelilla wax presents all the characteristics of an extractive industry; those interested are content to exploit natural stands without attempting artificial propagation of the plants, which are allowed to multiply spontaneously. Although reserves are large enough to satisfy present requirements, this may not always be the case. The extractors of Candelilla wax believe that the plant cannot die out because the general method of exploitation serves as an indirect means of propagation. It is sufficient, however, to recall the biological characteristics of the plant and the method of exploitation in order to realize that exactly the contrary is the case.

The most intensive exploitation takes place during the winter, when labour is most plentiful, other field work being at a standstill, and when wax production is at its best, as the Candelilla loses its water during frosty weather and increases its stock of wax as a natural means of protection. This increased exploitation during the winter months is gradually exhausting the Candelilla fields, a large number of the plants which are torn up at that time ceasing to send out shoots.

When the plant is pulled some of the roots usually remain in the ground but these cannot resist the cold weather. Some very old Candelilla farms which were abandoned when the plants became exhausted are still to be found. This exhaustion does not take place very rapidly and it is possible to obtain three or four cycles of exploitation lasting a total period of 12 to 16 years by allowing the fields a partial rest every three or four years.

(c) ECONOMIC ASPECTS OF EXPLOITATION.

In exploiting the Candelilla only the reserves created by nature without the farmer's intervention are utilised. This is a transitory situation, however, and there is no doubt that if the demand for wax were to increase, working of the Candelilla would gradually be transformed into a real farm industry.

(iii) INDUSTRIAL USES OF CANDELILLA WAX.

The uses to which Candelilla wax is put depend on its properties which vary with the season of gathering and the age of the plant. The wax extracted during the winter has a higher melting point than that taken in the spring or summer; its acidity and saponification index are also higher and its colour darker.

Comparison with other types shows that Candelilla wax is harder and less brittle than Carnauba wax; when melted it is more viscous than the latter, while it shows the same points of difference from beeswax. In general appearance it is more like a resin than a wax. It has two outstanding defects militating against its utilisation: the difficulty of blanching and its high content of resin. Mixed with other waxes which raise its melting point, it can be used for the manufacture of candles. It is also utilised in the preparation of bitumens for road-surfacing as its low melting point gives it a hard and brilliant surface and its viscosity prevents evaporation of the turpentine essence and other substances used for obtaining bitumen and fats.

Candelilla wax is used in the manufacture of varnishes because a brilliant surface, constituted by a thin film of protective wax, remains after the solvents have evaporated. It is also mixed with rubber and guttapercha for the manufacture of electric apparatus, insulators, etc.

Mixed with other waxes and fats, it serves as a furniture polish. It is also used on a very small scale for modelling wax figures, flowers, etc., and in the manufacture of waterproofed articles. The Government of the United States used Candelilla wax in large quantities for waterproofing tents during the Great War.

It can also be mixed with Sapote gum (chicle) and other oriental gums for the manufacture of chewing gums; this use is decreasing, however, as jelutong and other gums now replacing chicle do not require to be mixed with Candelilla wax.

Wax matches, explosives, gramophone records, candles, carbon paper, etc., are also manufactured from Candelilla wax, and the product is also used by the Mexican peasants as a finish in the tanning of certain hides. The juice of the plant serves as a purgative and infusions of the leaves give a liquid which is used in the treatment of gonorrhea and syphilis.

TABLE II. — *Characteristics of the various waxes.*

Characteristics	Candelilla Wax	Japanese Wax	Carnauba Wax
Saponification Index	106.0	221.30	87.0
Refraction Index	45.0	47.0	86.0
Iodine Index	5.5	4.5	13.5
Acidity	0.03	9.25	0.01
Melting point	75.0	51.0	85.0
Density at 15° C.	0.947	0.977	0.99

(2) SUBSTITUTES FOR CANDELILLA WAX.

In the following table will be found some comparative figures concerning Candelilla, Japanese and Carnauba waxes.

It is interesting to note the melting points of the principal waxes which compete with Candelilla wax.

	Melting point in °C.
Palm Wax	83
Carnauba Wax	82
Chinese Wax	82
Candelilla Wax	75
Beeswax	61
Japanese Wax	42
Myrica Wax.	42
Ocuba Wax.	40

A few remarks concerning the various substitutes may be of some interest.

(1) *Palm Wax*. — This wax, obtained from the *Ceroxylon andicolum*, a species of palm growing in the highest parts of the Cordillera of the Andes, is extracted by grating the bark and boiling the resulting powder. The melting point of this wax, which has almost the same qualities as Carnauba wax, is between 85 and 86° C.

(2) *Carnauba Wax*. — This is extracted from the *Copernicia cerifera* wax palm which is very common in Brazil, Venezuela and Colombia. The method of extraction is simple. After being dried in the sun, the palm leaves are grated and allowed to soak until the wax runs off, when it is set aside to be decanted. The yield is one kilogram of wax per 250 or 300 leaves. The essential components of this wax are myricile palmitate, myricilic ester and palmitic acid. Its high melting point (between 82 and 90° C.), leads to its frequent use for the conversion of fats into more easily melted substances and also for rendering paraffin and ozocerite suitable for use in the manufacture of candles.

This wax is of a slightly greenish colour but when well prepared is yellowish white; it is tasteless, very hard and brittle and easily ground to powder. It is soluble in ether and in boiling alcohol. Mixed with beeswax, it is used in the manufacture of candles. When added to paraffin and stearin it raises the melting point, the addition of about 15 per cent. of wax being sufficient to raise the melting point by 10° C. It is utilized in the manufacture of creams, gums, decorations, gramophone records, etc.

It has been used for some time in the manufacture of a special soap called Carnauba soap. In view of its characteristics, Carnauba wax ought rightly to be considered as a fat, but as it is always looked upon as a wax by the trade, this designation will be retained in this study.

Annual exports of this product from Brazil have increased slightly between 1910 and 1935, having risen from 6,000 to about 7,000 tons. The largest importer is the United States, which takes half the Brazilian output; other large importers are Great Britain, Germany and France. The export figures

show that purchases by importing countries have been perfectly steady for some time, which indicates that the market is firm. Candelilla wax exports, on the other hand, are most irregular, this product being utilized only intermittently.

(3) *Chinese Wax*. — This is produced by the insect *Couis Cerifera* which deposits the wax on the trees where it lives. It is very similar to spermaceti and is a brilliant white, melting at 82° C.

(4) *Beeswax* is very common in Mexico and there is a great future for exports. Its melting point is between 61 and 63° C.

(5) *Japanese Wax* is extracted from *Rhus vernicifera*. The glyceride or fatty substance obtained from the *Rhus sylvestris* (a tree which grows in China and Japan) is also improperly called Japanese wax. *Rhus vernicifera* is also found in Indochina and in India. The fruit contains from 20 to 25 per cent. of fatty substances and from 40 to 65 per cent. pulp. The ordinary wax is a greenish-gray colour with a slightly resinous smell; it is brittle and of a crystalline structure. Under the action of heat the wax becomes brownish and covered with powder, melting between 48 and 50° C. It is soluble in boiling alcohol, the solution coagulating into a granulous and crystalline mass as it cools; though it does not dissolve readily in ether, it is immediately dissolved by water. Its essential components are palmitic acid (13 per cent.) and soluble isobutyric caprylic acid; unlike the other waxes, when heated with bisulphide of potassium it gives off a pungent odour of acrolein.

Its trade names are Kobe Kitagumi and Japanese wax, and it is shipped in bales of 200 kg. It is used for polishing articles made of turned wood, and for the manufacture of candles and soaps. Japanese wax is utilized in Italy for the manufacture of wax matches and also as an imitation of beeswax. It is generally mixed with other waxes.

(6) *Ocuba Wax* is extracted from the stones of the fruit produced by the *Myristica surinamensis*, a tree which grows in the State of Pará, along the Amazon and in French Guiana. It is olivegreen in colour, melts at 40° C., and is suitable for the manufacture of candles.

(7) *Wax from the Myrica cerifera*. — This wax is obtained from the fruit of the *Myrica cerifera* and is known as Luciana or vegetable wax. It is found in the form of a whitish efflorescences covering the fruits of the various species of the *Myrica* genus. The wax is produced by secretory organs and is deposited in a blackish film over the surface of the fruits. These same secretory organs produce a highly perfumed oleoresin which is mixed with the wax. When the fruit is plunged into hot water the wax melts and floats on the surface of the water; the longer it remains there the darker it becomes. It is then purified by melting and poured into specially shaped moulds for the market. Each tree yields an average of 12 to 15 kg. yearly. Owing to the chlorophyll contained in the fruit, the wax is greenish in colour; as it ages it becomes covered with a fine, compact film which gives a whitish or greyish appearance. This wax is harder than beeswax but not so hard as palm or Carnauba wax. When heated it melts at between 42 and 49° C., the liquid wax having a smell similar to that of rosemary.

According to MOOR, this wax consists of palmitin and laurin and should therefore be considered as a fat. In the regions where it is produced it is used as an anti-diuretic and for the same purposes as beeswax. There are extensive *Myrica* plantations in Mexico, especially in Vera-Cruz, Hidalgo, San Luis Potosi, etc. This product is often wasted as it has not been much studied, but it is probable that it might become an important product for export from Mexico in the future.

A general description has been given of the chief uses and properties of vegetable waxes used indiscriminately in the manufacture of various articles. As there is a great variety of these waxes and as they have no individual characteristics leading to their adoption for special purposes, prices do not fluctuate much. A sort of balance is maintained as a rapid rise in the price of a particular wax immediately causes traders to purchase other types of the product.

(C) METHODS OF EXTRACTION.

Candelilla wax has been exploited since the beginning of the century and little improvement has been made in the method of extraction since then. This is due to a number of factors which are deserving of analysis. Some manufacturers have erected large factories equipped with modern machinery permitting improved methods of extraction, but even with this equipment the results have been quite unsatisfactory as regards unit yields. The largest factory in the whole region has been installed in the historic farm of Guadalupe, where 2 tons of leaves are treated hourly, but operation is economical only if the raw material can be obtained within a radius of 10 km. When the available candelilla in the surrounding district had been exhausted, the factory was soon running at a loss.

The characteristics of this industrial crop (periodicity, migration etc.), have obliged manufacturers to work with light apparatus which can readily be moved from place to place as the natural reserves become exhausted. Factories are generally planned with a series of basins where the wax is treated by direct heat. These basins are set in hollows in the ground, candelilla refuse being used as fuel. The output of the factories varies according to the size and number of the basins. As a rule, each factory has about ten basins from 50 to 70 cm. in depth and from 1 metre to 1 m. 50 cm. in length, each basin having a capacity of 100 to 200 kg. of Candelilla. The process lasts half an hour. Only those processes of extraction in general use will be described, *i. e.*, extraction by direct heat, extraction by steam and extraction by means of solvents.

(1) *Extraction by direct heat.* — By this method the wax is extracted by boiling the plant. About 8 kg. of sulphuric acid is added to each 1000 kg. of Candelilla; in practice this works out at 1 kg. of acid to 3 kg. of raw wax produced. The whole plant is put into the basins and covered with water (5 litres to about 100 kg. of Candelilla), a fire is lighted under the basin and 200 g. of sulphuric acid are added when the water boils. A black scum immediately

appears on the surface of the liquid and the plant is then kept down in the basins by specially constructed grids fitted to the top of the basins, allowing the scum to float on the surface of the water, which is carefully skimmed and the scum put into special containers. As it cools the scum coagulates into a creamy mass. When a certain amount of this scum has been collected, the first process of refining is commenced by bringing the mass to the boil for a second time, and again adding sulphuric acid. The product is allowed to cool slowly so that it can be easily decanted and separated from foreign matter. The

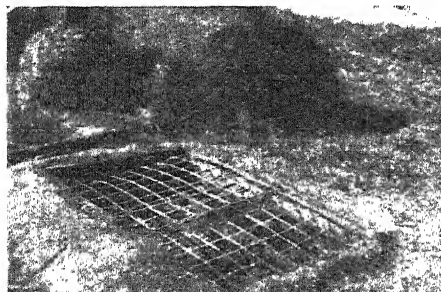


FIG. 2. — A grid used to keep the Candelilla plants at the bottom of the pit.

of sulphuric acid added. The object of this last operation is to separate the wax from foreign matter and to dehydrate the product to the degree required by trade specifications. When the wax is sufficiently refined it is poured into tin containers or into cement reservoirs for final cooling. When cold, it is broken into little bits and put into jute sacks containing 80 kg. net weight as required by trade regulations.

The refined product is the colour of *café au lait*, while the raw wax is whitish.

(2) *Steam Extraction.* — The second method is not much practised and differs from the one described above only in that heating is effected by means of steam instead of by direct heat. It presents considerable disadvantages as

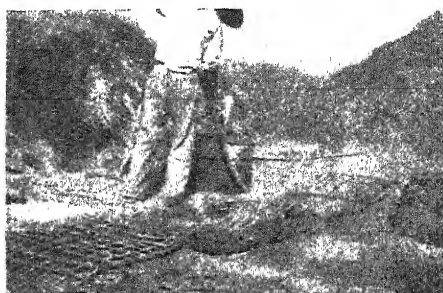


FIG. 1. — Filling the pit before extraction.

crude wax so obtained still contains 8 to 10 per cent. impurities mainly composed of earth, water and foreign substance. The weight of the wax is usually about 2 per cent. of the weight of the plant before treatment: this is the lowest limit at which exploitation is profitable for small producers. Producers on a large scale can afford to go as low as 1.74 per cent. and still make a profit.

In order to obtain wax for commercial purposes, the raw wax must be boiled again and fresh quantities



FIG. 3. — Skimming the melted wax.

it requires heavy equipment which is difficult to transport and consequently unsuited to the shifting character of the industry.

The plant is put into large lead-lined wooden receptacles traversed by a serpentine for conducting the steam; a metal grill at the top of the receptacles compresses the plant, which is then covered with water, the steam being sent through the serpentine. After a certain time the wax floats on the top of the water forming a blackish scum. The grill is then pressed down on the plant, allowing the scum to float freely, after which it is collected in the same way as in the previous method; the grills are then removed and sulphuric acid is added (about 8 kg. per ton.). The addition of the acid causes a further flow of a large quantity of wax retained in the ligneous parts of the plant. Heating is continued and the contents stirred to facilitate the flow of wax which is then collected as before. When the raw material has been completely exhausted it is set aside for use as fuel.

The scum coagulates into a creamy mass full of impurities, which are eliminated by boiling the wax again. This is effected by placing the crude wax in a clean container with water to which a little common salt has been added and then heating until the wax takes on a slightly yellowish hue. When the contents have cooled the wax comes to the top, leaving all the impurities underneath. It is then removed and submitted to further refinement as in the first method.

(3) *Extraction with solvents.* — If suitable extractors are available this method gives good results. The procedure differs considerably according to the solvent used, although the principle is always the same. One of the best extractors is based on the Soxhlet principle, which need not be described in detail as it is well-known. It will suffice to say that during the process of extraction the temperature is maintained at between 60 and 80° C. for a period of 20 minutes. Meanwhile the steam from the solvents is constantly in contact with the Candelilla and becomes impregnated with the wax. The process is repeated as often as necessary to exhaust the plant's supply of wax; this point has been reached when the solution obtained by cooling the steam emanated by the solvent after it has passed over the Candelillas is absolutely colourless.

The wax is then separated from the resin by means of a centrifugal machine. In this process the precipitation collected should be treated with a little alcohol. The wax remains in the bowl of the machine, while the resin dissolved by the alcohol is thrown out and deposited in an alembic used for the distillation of the residue.

(4) *Extraction by Exudation.* — Patents have been taken out for a process of improving and increasing the yield of Candelilla wax; this method consists principally in causing exudation of the sap through the outer skin, but as the hypothesis upon which it is based is false, the process will not be described.

(p) YIELDS.

In order to obtain a slight idea of the relative value of the most usual methods adopted for the purpose of extraction, the wax content of the plant

in the natural state should be known. The results of analyses carried out in various regions are given below:

(a) *Analysis of a dry plant at the Guadalupe farm (Coahuila):*

Moisture	52	%
Wax	5.20	%

(b) *Analysis of a green plant at Oaxaca:*

Moisture	64	%
Wax	0.9	%
Resin	5.60	%

(c) *Analysis of a dry plant in Baja California:*

Moisture	53	%
Wax	5.80	%
Resin	3.60	%

The data indicate that the wax content of the plant varies from 1 to 6 per cent. and that the maximum resin content does not exceed 5.6 per cent. Certain observations which have not been checked by the author make it possible to state also that the resin content could be as high as 24 per cent.

The yield is affected by various factors and in particular by soil and climate. It has been noted that the excessive moisture and heat of the coastal regions cause a minimum wax yield and a maximum yield of rubber latex. The yield is greatest when the weather is dry as the plant increases its secretion of wax in order to preserve its moisture.

The yield also varies according to whether the plant is gathered in the green state or when dry. Laboratory analyses show an average yield of 5 per cent. for dry plants, although industrial methods barely obtain half this amount when utilizing green plants. In the States of Coahuila, Nuevo León, Durango and Zacatecas, the yields do not vary much, as the plants produced always have the same wax content which is sufficient for industrial exploitation. The same cannot be said for the Southern States, Oaxaca and Puebla, where the wax content of the plant is hardly 1 per cent, and thus insufficient for commercial exploitation.

The industrial methods employed at the present time are not very satisfactory as they only obtain a yield fluctuating between 1.75 to 3 per cent. of raw wax. It is hoped, however, that by using solvents only as a means of extraction, it may be possible to arrive at a yield of 5 per cent. of raw wax. This last method has the further advantage of making it possible to utilise the residue as a by-product of Candelilla exploitation.

(to be continued)

MIGUEL GARCIA CRUZ

THE DAIRY HERD IMPROVEMENT ASSOCIATIONS IN THE UNITED STATES

As has already been described in the volume published by the Institute in 1935 on "Dairy Cow Testing throughout the world" (1), there are two very distinct schemes of Dairy Herd Improvement operating in the United States and conducting the testing of dairy cows for the purpose of selection. One of these schemes is that conducted by the breed associations which is only concerned with pure-bred animals of the different breeds, while the other deals with commercial dairy stock, regardless of breed, and is conducted by the numerous small Dairy Herd Improvement Associations existing throughout the country.

While the number of cows tested under the Breed Association testing schemes is a comparatively small one (about 10,000), the Dairy Herd Improvement Associations are dealing with about half a million cows. Their influence on the improvement of dairy stock in the United States is therefore very considerable, not only in view of the increasing number of the Associations but also because of the ever improving methods adopted.

The first Dairy Herd Improvement Association in the United States was founded in 1905 in the State of Michigan. The number of these associations rapidly increased up to the year 1930, except for a check during the last years of the Great War. The economic crisis affecting agriculture during the years from 1930 to 1934 caused a retrogression in the development of the Dairy Herd Improvement Associations, but since that year their number has been again rapidly increasing, as shown in table 1.

TABLE 1. — *Number of Dairy Herd Improvement Associations in U. S. A.*

1905	1
1910	40
1915	211
1920	468
1925	732
1930	1143
1931	1112
1932	1005
1933	881
1934	793
1935	809
1936	876
1937	992

(1) *Dairy Cow Testing Throughout the World*. International Institute of Agriculture, Rome, 1935, pp. 158.

The 992 associations existing in 1937 comprised a total of 20,758 members with 495,997 cows on test. The great possibilities of development which dairy herd improvement still has in the United States, may be seen from the fact, that even this great number of tested cows represents only 2 per cent. of the cows milked throughout the United States.

The Dairy Herd Improvement Associations are not evenly distributed throughout the country. The majority of them are situated in the north-eastern and middle-western States, where dairy husbandry is more highly developed and more important.

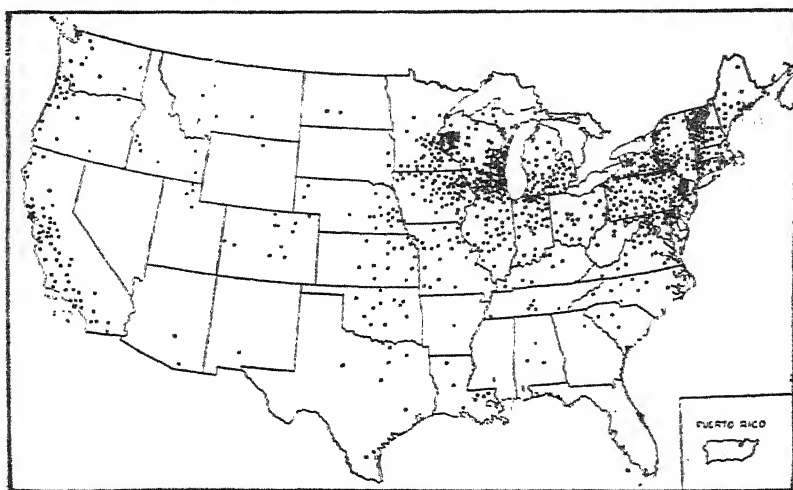


FIG. 1. — Distribution of the 992 Dairy Herd Improvement Associations throughout the U. S. A.
(Each dot one Association)

Organisation of the Dairy Herd Improvement Associations.

A Dairy Herd Improvement Association is usually an organisation of about 26 farmers, who cooperatively employ a tester to keep production, feed, income and breeding records of their dairy cows.

The dairy extension specialist and the County agent, who are the State officers charged to assist the local farmers with their advice in all farming and dairying operations also grant their assistance in the case of the creation of new dairy herd improvement associations.

The U. S. Government and the Governments of the single States of the Union help the dairy farmer in many ways in organising and operating their associations. The U. S. Department of Agriculture has established a *uniform constitution* and *uniform regulations* for such Associations and supplies all Associations with the necessary forms and books to be used during the work of the association.

The Government succeeded in this way in making the work of all associations throughout the country almost uniform and in making the results of this

work easily comparable and suitable for the Investigations, which are conducted by the State Colleges of Agriculture and by the Federal Departments, and have the data supplied by the associations work as their basis.

The Dairy Herd Improvement Associations operate under the supervision of the State dairy extension specialist and the local County agent.

In spite of the great help granted by State and Federal authorities, the Associations are and remain free Associations of dairy farmers. As a matter of fact the call for organisation originates usually with the dairyman and the association elects freely its president and secretary.

The work of each association.

The purpose of a Dairy Herd Improvement Association is to obtain records of production, feed consumption and income for each individual cow in the herd, to be used as a basis for herd improvement. This information enables the herd owner to feed efficiently his cows, to eliminate unprofitable cows from the herd and to keep the calves from the best cows.

But the data supplied by the work of the Dairy Herd Improvement Associations are also largely used for the purpose of improving the dairy cattle stock in the country in general. One of the means in this connection is the proving of dairy sires, effected on the basis of the results obtained by the Associations. This work is carried on by the Federal Department of Agriculture, which records the data of all the cows tested and keeps records as to the progeny and ancestors of these animals, so as to be in a position always to show whether an animal had a favorable or an unfavorable influence on the production of its progeny, i. e. whether an animal is genetically valuable or not.

The objective is to produce by means of the Dairy Herd Improvement Associations improved breeding stock, which will be capable of raising the general production level of the 25,000,000 dairy cows existing in the United States.

Methods adopted.

The tester employed by the Association visits the farm of every member one day each month. Only in a few instances is a bi-monthly test employed. In this case the interval between the visits of the tester is about 2 months.

During his visit the tester verifies and registers the production of milk and butterfat, the percentage of fat in the milk, the price received for the products, the value of the product, the kinds, amount and cost of roughage and grain fed, the cost of pasture, the total cost of feed, the income of the farmer over the cost of feed and the cost of production per unit of the product obtained. The records made by the tester are thus very complete and give the farmer a picture of the economic value of each single cow, as well as of his entire herd.

In addition to this the tester discusses with the member the merits of the individual cows and offers suggestions on changes of feed and management.

The data obtained by the tester's work are recorded by him first in the *Barn Book*. The tester will enter in this barn book all cows of the herd, whether dry or in milk, and lists them in the same order on each visit. For each indi-

vidual cow the weights of two milkings are recorded separately and then added to obtain the "total of day's milk production". This total is multiplied by the number of days of the monthly testing period to obtain the figure for "Month's milk".

The butterfat percentage is obtained by the Babcock test and also recorded in the barn book. By multiplying the total milk production for the period by the butterfat percentage, the total butterfat production is obtained and recorded.

In a separate column of the barn book the price of the product as obtained by the farmer is registered. The price recorded for the purpose is the average f. o. b. farm price actually received during the monthly testing period. If the milk is separated on the farm and only the butterfat is marketed, both the value of the butterfat and the value of the skim milk are registered and added in order to obtain the "total value of the product".

In order to estimate the quantity of feed distributed to each cow, the tester verifies the quantity of each kind of feed given daily and during the whole testing period. If a concentrate mixture is fed, the percentage of its total protein is also reported.

The cost of feeds, which are not purchased, is mostly fixed on the basis of uniform prices established for each association by a committee which meets at certain times of the year and estimates the values of home-grown feeds for a definite period. These estimates include pasture and silage. In cases where there is no Committee to fix and estimate these prices, they are determined by the tester in collaboration with the farmer.

After having obtained all these data, the tester registers in the barn book the "value of product above (or below) feed costs" as calculated by him.

If the record for each individual cow is complete the tester calculates also the monthly herd total by adding each individual cow record, and the monthly herd average by dividing the monthly herd total by the total number of cows in the herd on the testing day, including dry cows.

In the *herd record book* the records are tabulated on separate sheets for each cow in the herd. The monthly summaries for each cow are transferred from the barn book in the herd record book and are added at the end of each yearly testing period to obtain the total yearly production of each cow.

In most cases the production records obtained during the monthly test are *centred* in order to obtain records of greater accuracy. This means, that the testing day is considered to be situated in the middle of a testing period.

Besides the barn book and the herd record book a *monthly herd summary* and a *monthly Association summary* are kept by the Associations of many of the States of the Federation.

The records of the individual cows are copied by the tester directly without any changes from the pages of the herd record book on the *Yearly Individual Cow Report Blank* which at the close of the testing year is sent to the State dairy extension specialist who forwards it to the Bureau of Dairy Industry of the U. S. Department of Agriculture, for tabulation and study.

Finally, a *Yearly Association Herd Summary* is used, on which the total herd records are listed for each member of the Association.

Identification of tested animals and recording production performance.

The Dairy Herd Improvement Associations have adopted a uniform system of *ear-tagging* which is applied to all animals not registered in herdbooks and those which do not already bear some official identification marks. The ear-tags are applied by the tester on his first visit on the farm and the identity of the animal is verified on each successive visit.

The tester, besides recording the production and feeding of each animal, has to report each birth of an animal within the herd, giving the exact date of the birth. The newly born animals of a member's herd are ear-tagged on the first subsequent visit of the tester.

The exact recording of births and the identification of the animal enables the U. S. Department of Agriculture to carry on its studies as to the genetic value of the animals tested. The production of the progeny of each sire can be compared with the production records of their mothers and the *index of the bull* established, ⁽¹⁾ which tells if a bull has improved the production of a herd or not. Each year bulls are proved in this way by thousands and also *outstanding breed cows* are identified in large numbers. Complete production data are accumulated for analysing the genetic make-up of herds in order to identify the *improved lines of breeding*.

Recently *lists of proved bulls* have been published, giving the genetic value of the individual animals. These lists are extremely useful to the breeders, as they give them the possibility to mate with their cows a bull known as an improver of dairy herds ⁽²⁾ ⁽³⁾.

Results obtained by the Herd Improvement Associations.

The gain in average production per cow is generally very rapid during the first years of an association's work. This progress is mainly due to improved feeding and also to the elimination of unprofitable cows from the herd. It has been calculated from the figures of some typical associations that the butterfat production per cow has improved as follows:

First year	237 lb.
Second year.	255 "
Third year	278 "
Fourth year.	292 "
Fifth year	305 "

Thus an increase of 68 lb. of butterfat or about 30 per cent per cow is achieved in five years.

⁽¹⁾ See "The Problem of Proving Dairy Bulls". *Monthly Bulletin of Agricultural Science and Practice*. No. 3. March 1937.

⁽²⁾ List of Sires Proved in Dairy Herd Improvement Associations, 1938. U. S. Department of Agriculture, Washington D. C. Miscellaneous Publication No. 315.

⁽³⁾ American Indexes of Sires Proved in D.H.I.A. The American Dairy Cattle Club. Chicago, 1938.

While the average production for all dairy cows milked in the United States was in 1935, 4,169 lb. of milk and 164 lb. of butterfat, the average for more than 150,000 yearly records of Dairy Herd Improvement Association cows on test in 1934-35 shows an average of 7,977 lb. of milk and 322 lb. of butterfat per cow.

One thousand five hundred and fifty three bulls have been proved by comparing the 305-day production records of all the daughters (five or more) of each bull with the same records of the dams of the daughters. Altogether the records of 14,802 daughters were compared with those of their dams. The dams produced on an average 9,712 lb. of milk and the daughters 9,553 lb., the dams averaged 372 lb. of butterfat, the daughters 373 lb. The daughters therefore produced less milk and just equalled their dams in production of butterfat.

These figures show the necessity of proving bulls as to their transmitting ability. The tests enable breeders to discard bulls which do not prove to be good transmitters of production qualities.

The Dairy Herd Improvement Associations are therefore to-day much more than a simple scheme for testing dairy cows ; they help the farmers to build up their dairy herds from the point of view of the genetic make-up of the animals. The work of these Associations combine the advantages of a herdbook with those of the testing activity, and this is done regardless of the breed or the general external appearance of the animal. It is a breeding activity based on the production value and the economic profitability of an animal to its owner.

ST. TAUSSIG.

AGRICULTURAL SERVICES SUPPLIED BY RAILWAY COMPANIES

(Concluded).

Australia. - Victoria.

The first railway built in Australia was between Port Melbourne and Flinders Street; this line was officially opened September 12 1854 and since then has been working without interruption. In early days the Victoria railways were constructed and worked by private undertakings; many of these companies however found it impossible to meet the necessary expenses. In 1857, an Act was passed empowering the Government to undertake the construction and working of railway lines. The last of the private lines was absorbed by the nationalisation scheme of July 1 1878.

The extension of the railway system itself has been the main object of railway policy in Victoria. Hence lines exist in districts where no profits result from the traffic, and, although such an enterprise may be regarded as in some sense a failure, possibilities of development have accrued none the less to the whole district which could not have been ensured by any other means. An example of this is the Mallee, in the North-west of Victoria, which was formerly a waste and which now, as a result of very fine irrigation installations, is covered

with thriving farms and settlements. The State of Victoria is remarkably well served by railways, no agricultural, grazing or non-mountainous district being more than 12 km. from the permanent way.

THE PUBLICITY CARRIED OUT BY THE VICTORIAN RAILWAYS TO ASSIST PRIMARY PRODUCTION.

The publicity organisation of the Victorian Government Railways Department is generally regarded as the most comprehensive on any Australian railway system, and it has throughout rendered every possible assistance to many aspects of primary production. What is at least of equal importance, the Refreshment Services Branch of the Department has been the medium through which the publicity in aid of fruitgrowers has been supplemented by the practical support of large purchases of fruit.

This assistance, begun over 15 years ago, to primary production, is the outcome of the realisation by the Department that the interests of the railways and of the primary industries were inter-dependent.

By means of the display and distribution of posters and folders, the use of calico signs and of Neon electric signs, the Department may claim to have inculcated into the minds of the population the health giving properties of fruit. Fruit growers on their side recognise the substantial influence exerted by the Department in their sphere. Special attention has been given to the propaganda for soft, canned and dried fruits.

The Department has printed and displayed in all Victorian Government Railway stations many thousands of highly coloured posters bearing the slogan "Eat more fruit", and depicting one or another phase of the fruit industry. In addition, booklets and pamphlets, containing recipes in which fruit of one kind or another is a principal ingredient, have been issued.

In this publicity, the Railways Department has co-operated with public bodies, such as the State Rivers and Water Supply Commission and the Department of Agriculture, as well as with various fruit growing organisations. The Commission and the Victorian Central Citrus Association have shared with the Railways Department the cost of citrus fruit publicity, and the Victorian Dried Fruits Board has co-operated with the Railways Department in dried fruits propaganda.

The publicity work and sales activities of the Department have been effective in disposing of large surpluses of fruit, as appears from several outstanding examples. As far back as 1924, the Department was instrumental in disposing of a pear glut in Victoria. Again at the beginning of 1926, the Department contributed materially to the success of Melbourne's Peach Week, when 70 tons of Elberta peaches were purchased at railway fruit stalls. In 1928, a glut of peaches was successfully avoided, largely owing to the sale by the railways of some 200 tons of the fruit. Later in 1928, a surplus of canned fruit and another of apples were also absorbed by railway sales.

In Victoria the Railways Department is the largest retail customer of the citrus growers. During 1936-37, the Department purchased fruit to the value

of £22,875 including £9,710 for citrus fruits. One of the largest factors in the success of the Department's campaign for popularising consumption of citrus fruits has been the introduction, in the refreshment rooms, stalls and restaurant cars under its control, of the "Sunkist" fruit juice extractors. There are now 84 of these extractors in use on the various premises, etc., belonging to the Department.

In addition, the dried fruit industry has been materially assisted by the large consumption of these fruits by the Railway Bakery which has specialised in the baking of raisin bread. The Department has in fact so far stimulated the general manufacture of this type of bread, that there are now more than 500 bakers undertaking it. At the Railway Bakery alone 9 tons of raisins were used in 1936-37 for making 119,208 loaves. Seven tons of dried fruits were used in the refreshment rooms, and 19,000 packets, amounting to one and a half tons, were sold at railway fruit stalls.

Practical assistance is also rendered to the fruit growing industry by permitting the sale of fruit from trucks attached to goods trains, and by authorising stationmasters to act as selling agents on a commission basis.

It may here be mentioned that the poster "Protective Foods" has been the subject of much favourable comment. It was highly praised at Geneva where a copy was specially displayed during the sittings of the International Committee on Nutrition.

Other primary industries for which the Railways Department has carried out publicity include dairying, wool-growing, beekeeping, potato growing and lamb-raising. Milk drinks have now become a popular beverage at the Railways Drink Stalls and in dining cars, buffet cars and refreshment rooms, the consumption in the course of 1936-37 amounting to 121,000 gallons and nearly 257,000 bottles of milk.

The publicity work for demonstrating the proper methods of handling lambs for export is of special value. Striking posters, accompanied by handbills for distribution among railwaymen and others engaged in the handling of the animals, have been greatly appreciated, and the marked improvement in the condition of export lambs may be largely attributed to this propaganda.

VICTORIAN NATIONAL RESOURCES DEVELOPMENT ("RESO") TRAIN.

The initiative in these tours is due to Mr. Harold CLAPP, Chairman of the Victorian Railways Commissioners, who was the first to realise the necessity for leaders of urban and rural industries to become better acquainted with each other and the immense possibilities of the State of Victoria. Thus it was that the Victorian Railways National Resources Developmental Train, a de-luxe train providing the highest standard of accommodation and organisation, was inaugurated.

It was decided to operate this train on tours of one week's duration throughout the primary producing areas of the State. In addition, the co-operation of citizens in various rural areas was successfully obtained in order that those using the train might be shown the farms, the sheep stations, orchards, etc., by the

owners, with whom they would also have the opportunity of discussion. The train utilised for these tours is known as the "RESO" train, the name being an abbreviation of the word "Resources", and 60 passengers can be accommodated. Up to 1938, the number of tours made in Victoria was 28. It is believed that these tours are very definitely;

- (1) Demonstrating the resources and development of the State;
- (2) Fostering settlement;
- (3) Showing the striking results made possible by scientific water conservation and distribution, and sound land settlement;
- (4) Improving the general understanding between town and country interests;
- (5) Enabling farmers in one portion of the State to learn at first hand the methods adopted by farmers in other areas;
- (6) Broadening the general knowledge of Australians in their country's marvellous possibilities and helping to develop an enthusiastic national pride and spirit; and
- (7) Demonstrating the working of the State's greatest industrial asset, *viz.*, the Victorian Railways.

In addition to the 28 tours in Victoria, 14 tours have been conducted to other States, including one to New Zealand in 1938.

COMPOSITION OF THE "RESO" TRAIN.

The "Reso" train consists of a parlour observation car, three sleeping cars, dining car, office car, staff car and guard's van. The observation car is equipped with wireless, and refreshments, tobacco, cigars, etc. can be obtained. This car is also provided with special maps and diagrams, which have direct relation to the country traversed, showing closer settlement areas, irrigation, afforestation, etc. Each sleeping car can accommodate 20 persons, and the dining car will seat 48 people. The office car contains typewriters and mimeograph duplicator; this car is also fitted with three hot and cold shower baths. The staff car also has three hot and cold showers, and sleeping accommodation for the officials. The guard's van includes an isolated portion used as a store, and the remainder is equipped with temporary two-tier bunks for the conductors, waiters, cooks, etc. The total length of the train including the engine, is 22 feet, and the weight is 422 tons.

The "Reso" passengers live on the train, eating and sleeping and receiving all the attention which would be obtained at a first class hotel. They enjoy special telegraph facilities and a special postal service. The Melbourne daily papers are supplied to the train while on tour.

Arrangements are made through the local municipal authorities or other public bodies for the party to inspect representative farms, factories, business establishments and any large Governmental undertakings. Usually half a day at each place is sufficient, but sometimes a full day is required. The local residents place at the disposal of the party a sufficient number of motor cars, for conveying them around the different districts. In the evening the local popul-

ation organise a gathering at which members of the "Reso" party are enabled to meet representative residents and to discuss with them any features of the afternoon's inspection. Introductions are facilitated by badges indicating name and business of the wearer in each case.

The Betterment and Publicity Board controls the organisation on behalf of the Victorian Railways Commissioners; a member of the Board usually accompanies the tour as Officer-in-Charge. A shorthand writer and typist who travels on the train is at the disposal of passengers for the performance of any clerical work required. If, as usually happens, the train passes through water conservation and distribution areas, forest regions, closer settlement districts, officers representing the appropriate public departments make the tour to give full information to the passengers.

The trip lasts approximately a week—Monday to Saturday afternoon. As a rule the departure from Melbourne is immediately after midnight on Sunday. The fare is calculated from Melbourne, but special facilities are given to country dwellers to enable them to join the train.

Endeavour is made to secure representation of primary, manufacturing, banking and other industries, as well as of trade in general. Town and country interests are alike represented. The Commissioners themselves determine on the composition of the party, and reserve the right to reject any application. Each passenger receives a booklet containing full information on the resources of the State, and with his ticket a folder containing useful hints for the journey and an outline of the facilities available on the train. Each morning the "Reso" Daily Bulletin is circulated; this is the train newspaper and contains information as to each of the districts to be visited.

Many expressions of high appreciation have been received from those who have taken part in the tours; among these several representative overseas visitors have expressed their satisfaction and spoken of the great advantage derived from the contacts made in the farming areas of the State of Victoria.

THE "BETTER FARMING" TRAIN, AN AGRICULTURAL COLLEGE ON WHEELS.

Appreciating the scope which existed in Victoria for increasing production by impressing on the farmers at first hand the advantages of scientific farming, the Department of Agriculture and the Victorian Railways Commissioners decided to co-operate in the organisation of a "Better Farming" Train. This train commenced running in October, 1924, and is now well known and highly appreciated by farmers throughout the State.

COMPOSITION OF TRAIN. — The train made up of 18 cars, is 817 feet long. It is really an agricultural college on wheels, and it has traversed practically the whole of the State (in some cases it has made a second visit), stopping at suitable centres for a day to enable lectures and demonstrations to be given. Up to June, 1938, the train made 38 tours, in which it has visited 379 centres, and the demonstrations at these places have been attended by approximately 244,500 people, mostly farmers and their wives and families. The maximum attendance at any one place was 5,000.

Up to 1930 the train made two or three tours each year, but with the advent of generally depressed business conditions—which ensued during the next four or five years—the number of tours was restricted for financial reasons. Usually the train runs in the spring and autumn when primary producers are not so fully occupied with their work. The make-up of the train is as follows:

(1) Staff car with sleeping accommodation for portion of the company, kitchen and shower.

(2) Sleeping-car for Lady Demonstrators, with sitting-room, and provided with hot shower-bath and cooking stove.

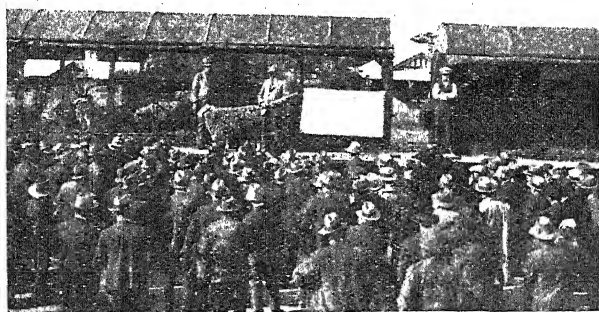


FIG. 1. — A lecture delivered from the Better Farming Train.

(3), (4), (5) Cattle trucks for the transport of pure-bred dairy cattle of various breeds—Jersey, Ayrshire, Friesian, Red Poll, and Milking Shorthorn. These animals are specially selected from high producing herds.

(6) Truck fitted with 12 pens and provided with a "let down" platform on each side carrying ewes and rams of Australian and British breeds.

(7) Flat truck fitted with pens and canopy, and carrying pure-breed selected pigs.

(8) Flat truck fitted with canopy equipped with models of stock feeding utensils, model gates, silos, concrete posts and other farm utilities. A portion of this truck is occupied by the Publicity Branch of the Department of Agriculture.

(9) Steel louvre truck with fireproof partition, carrying electric light generating plant in one end, and fodder for stock in the other.

(10) Truck containing tiers of wire cages on one side, provided with an automatic watering system and carrying specimens of the different breeds of poultry of both profitable and unsuitable types. On the other side modern poultry farming equipment, such as feeding and watering receptacles, sheds, yards, nests, etc., is set out in model form.

(11) Car containing veterinary exhibits, the main features of which are those indicating the life history and control of the more common internal and external parasites. Other exhibits are arranged to emphasize the necessity for making available mineral licks for sheep and cattle. A portion of the car is devoted to Public Health and Farm Hygiene and contains various model equipment pertinent to the preservation of public health.

(12) Car containing fruit exhibits packed in the correct methods for the home and export markets. Models of graders and packing-sheds, etc., also a collection of destructive parasites. A portion of this car is devoted to honey.

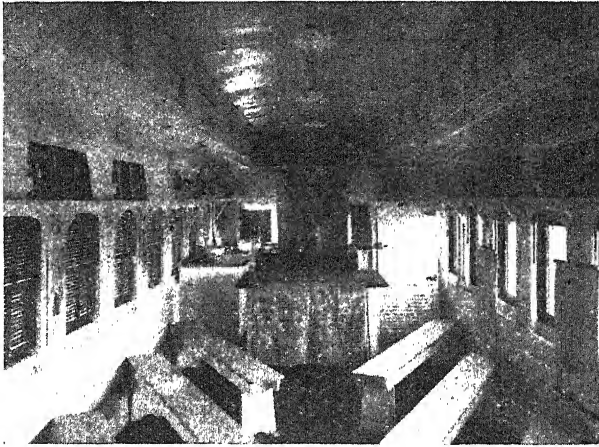


FIG. 2. - Cookery school in the Better Farming Train.

An attractive exhibit of honey derived from different flora is shown, and utensils used in the bee-keeping industry.

(13) Car containing samples of stock feeds and their feeding values. The correct proportions necessary for making up a balanced ration to satisfy the fodder needs of a milking cow are shown. Milk and its products, and the bacteriology of milk are dealt with in this car.

(14) Car containing wool exhibits comprising fleeces of various breeds of sheep to show length, character and style necessary for the correct type of wool from each breed. Portion of this car is devoted to potatoes and the various features which should be associated with successful potato culture. The use of gypsum on stiff clay soils is illustrated.

(15) Car containing boxes of actual sods of growing grasses cut from the field in various parts of the State and arranged to enable comparisons to be made of pastures which have been top-dressed with artificial fertilizers with others which have not. Further exhibits relative to the cultivation of wheat, maize, oats and lucerne are shown in this car.

(16) Car fitted with forms to seat 80 persons and used for lectures and demonstrations on child welfare, home nursing and mothercraft.

(17) Car equipped with cooking range, and show places for the display of needlework, etc., and used for demonstrations in needlecraft and cookery.

(18) Brake van fitted with bunks for the accommodation of the train crew and attendants.

Painted an orange yellow, the train is a striking object on the landscape as it passes through the country. The make-up of the train is altered somewhat in accordance with the farming activities carried on in the districts through which the train runs. In the wool growing districts, for example, a fine collection of sheep and a wool expert are carried, and special provision is made to meet the needs of the wheat and fruit growing districts.

STAFF ACCOMPANYING TRAIN. — The train is accompanied by a specially expert staff from the Department of Agriculture, led by the Superintendent of Agriculture. It includes citriculturist, dairy inspector, potato expert, tobacco expert, veterinary officer, sheep and wool expert, entomologist, dairy supervisor, live stock specialist, poultry expert, bee expert and a number of other field officers and assistants in various branches of the farming industry.

There are also experts in needlework and cookery, sent by the Education Department. The Public Health Department sends the District Health Officer in charge of the Public Health Car and a trained nurse to give instruction in mothercraft and the care of children. The Railways Department is represented by a member of the Betterment and Publicity Board, who also attends to the publicity and general organization before the tours are undertaken.

ITINERARY OF TRAIN AND PRELIMINARY PUBLICITY. — The itinerary is framed, generally speaking, with a view to holding demonstrations at distances of about 20 miles, and it frequently happens that farmers have been so impressed with the value of the information to be gained from the lectures and exhibits that they journey on following days to the other stopping places, so as to take full advantage of the unique opportunity thus afforded. Representatives of the Agricultural and Railways Departments visit each centre in advance and secure the co-operation of municipal councils, agricultural societies of all kinds, and the leading citizens generally. Posters for exhibition locally and handbills for distribution through every available channel are then sent to the various districts. In addition, invaluable publicity is obtained through local newspapers.

STOCK ON TRAIN. — The live stock on the train is for the most part loaned by private breeders and the dairy cattle carried are magnificent specimens of Friesian, Ayrshire, Jersey, Red Poll, and milking Shorthorn breeds (a bull and cow of each). The stock demonstration is a feature of the tours. The splendid animals are paraded and lectures delivered on the wise selection of dairy stock, the necessity for careful breeding and the application of proper herd-testing practices. The elimination of the scrub bull and his replacement by a well-bred and prepotent animal of tested milking strain on the farm is stressed as an important factor in raising the standard of the dairy herd and increasing the butter fat content of the milk yield. A grade cow of good conformation, but

poor production, is also carried to impress upon dairymen the futility of judging by appearance. The farmers are greatly interested in these lectures and at their conclusion the keen questions indicate their desire to learn all that the opportunity permits.

The same applies to the pig demonstration, where Berkshires, Middle and Large Yorkshire breeds are on exhibition. Pig-raising is commanding increasing attention in Victoria and the experts on the train have a busy time answering inquiries on breeding and feeding.

The poultry truck is interesting to many besides the farmer. The birds carried are fine specimens of the leading breeds, and some poor types are also carried for purposes of comparison. The lantern lectures delivered nightly by the expert in this section are always crowded by eager listeners.

The interest shown in the sections alluded to is maintained throughout the train. The breeding and feeding of pigs, diseases of stock, packing and grading of fruit, hygienic methods in dairying, care of the milk from the time it is drawn from the cow until it is finally taken into consumption, all receive the attention their importance demands, and the officers in charge of these departments are gratified at the appreciation expressed by the thousands who seek their advice while the train is on tour.

WHEAT CULTIVATION. — The cereal car excites the keenest interest in the wheat-growing areas. Here is vividly demonstrated the great gain to the farmer by adoption of proved methods of fallowing, manuring, seed pickling, proper rotation of crops, by selection of seed, the application of gypsum to stiff clay soil and the methods by which diseases may be guarded against or minimised.

A large tent capable of accommodating 300 people is carried. This is erected near the train and in it the "Better Farming" lectures are given. On the tours throughout the wheat belt, the talks on wheat-growing were attended by an average of 200 farmers daily. At the conclusion of the lectures questions were invited on every aspect of wheat growing and the meetings developed into a series of agricultural conferences for the discussion of problems.

VALUE OF THE TRAIN TO THE STATE. — In assessing the value of the tours of the "Better Farming" Train to the primary production of the State, it must be borne in mind that in some branches of its activities it is extremely difficult to estimate in monetary terms the benefits which have accrued. For instance, many wheat growers have volunteered the information that they have definitely increased their yield per acre by following methods advocated on the train in such practices as fallowing, rotation and manuring, as also by sowing the types of wheat recommended. In addition to the gain to the individual farmers, this increase in production is noted by others, who are not slow to adopt similar methods.

In many branches of farming, definitely beneficial results can be quoted as accruing from the lectures and demonstrations given at various centres.

DAIRYING INDUSTRY. — The herd testing movement has been stimulated in a remarkable degree by the visits of the train to dairying centres. At the time the train was organised, there were eight Herd Testing Associations in

Victoria — there are now 107, and 80,500 cows are being regularly tested, the average yield of butterfat last year being 244 lb. per cow. Many of the Associations were formed on the day of the train's visit, or at a subsequent meeting of dairy farmers, at which an officer of the train had been invited to attend.

PASTURE MANAGEMENT AND IMPROVEMENT. — The Victorian soils are deficient in phosphates and the application of superphosphate manures has been found almost invariably to have good results in improving the pastures, not only as regards yield in quantity but also with regard to succulence and nutritive qualities.

Since the inauguration of the train, the value of top dressing with superphosphates and of pasture management has been explained by means of lectures and in addition sods of growing pasture taken from experimental plots in the districts visited have been exhibited in the demonstration cars. Where the advice so given has been adopted, there has been an appreciable increase in the carrying capacity of many farms; on a second visit to the same district, farmers have come to the officers of the train to confirm this. On the latest tours of the train through pastoral and dairying areas, an exhibit has been on view illustrating the advantages of the adoption of a system of intensive rotational grazing calculated greatly to increase the carrying capacity of farms; in many districts farmers have put these methods into practice.

FRUIT. — In the fruit section of the train, a feature has always been made of the correct methods of packing and grading; demonstrations of these have been given at all the important fruit centres throughout the State. The Superintendent of Horticulture is convinced that these demonstrations have led to a definite improvement in methods both by individual growers and by packing sheds.

Important results have been achieved by bud—selection, and on the last tour, some growers took the opportunity of having unprofitable varieties rebudded from improved strains.

PIGS. — The Officers of the Department of Agriculture on the train have from the first tour recommended that more attention should be given to the breeding of pigs for bacon production.

In view of the experience in the great bacon producing countries of the world, it would seem that the best results might be achieved by breeding pure bred Large White Yorks, and crossing these animals with the other, ordinary breeds. Recommendations to this effect have been followed, as is evidenced by the fact that while there were only three studs of this breed when the Better Farming train was first inaugurated, there are now more than 70.

The examples given for these various branches of agriculture might easily be extended to include the horse breeding, sheep and poultry industries, in all of which very definite instances might be quoted of improvement resulting from advice given in the course of the tours.

WOMEN'S SECTION. — In the portion of the train devoted to the interests of the housewife, demonstrations are given in cookery, needlecraft, infant wel-

fare and home nursing. It is unnecessary to emphasise the value of the advice given to mothers and to expectant mothers by the Assistant Director of Infant Welfare, especially in districts where medical advice is difficult to obtain.

GENERAL CONSIDERATIONS. — In addition to the material advantages accruing from the information given, one of the objects is to stimulate the aesthetic and social life in the country and to encourage the amenities of the home.

On one of the cars a number of shrubs and trees suitable for ornamental and shelter purposes are carried; lectures are given by Officers of the Horticultural Branch of the Department of Agriculture on gardens, and advice is given as to the most suitable shrubs and trees for the locality in question.

CONCLUSION. — Not only in farming, but also in official circles, the Better Farming train is considered as one of the finest movements inaugurated in the State.

The collaboration between the Victorian Railways Commissioners and the Department of Agriculture has been fruitful, since it has enabled farmers and their families to acquire modern knowledge the application of which is profitable not only to themselves, but to the State as a whole.

New Zealand.

In New Zealand all matters pertaining to the development of agriculture are within the province of the Department of Agriculture, which is one of the Departments of State.

Railway activities in connection with agricultural propaganda are confined to the promotion of farmers' excursion outings by rail (on the lines of those undertaken in Victoria) during the winter months, in order to provide an opportunity for those engaged in the industry to study farming conditions and operations in other parts of the Dominion at a season when the requirements of their calling do not entail the same close attention as is necessary during the remainder of the year.

These tours are organised with the co-operation of the various farmers' organisations and interested public bodies. Those taking part in them receive hospitality from the farmers in the districts visited and this generally results in invitations for reciprocal visits during the following season.

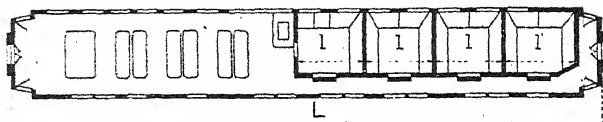
The itineraries of the farmers' excursions include visits to farming areas, agricultural colleges and various industrial establishments throughout the Dominion. Apart from the recreational value of the tours, they afford opportunities for personal contact between people of similar interests and for insight into the various methods followed in the farming industry in different parts of the Dominion.

The Department of Agriculture has also shown an interest in the tours, members of the different divisions of that Department sometimes taking part in them and giving instructive lectures during the journey. The subjects treated include animal diseases, fertilizers and their suitability to the different classes of soils, and kindred topics.

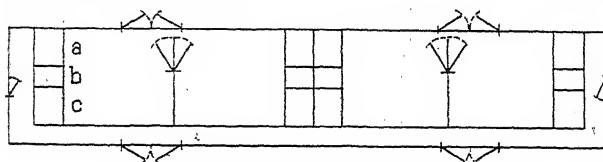
Union of South Africa.

The Union of South Africa has a railway system of 21,700 km. making practicable the transport of some 60,000,000 passengers and of 15,000,000 tons of commodities (1934). The railways are almost entirely under State management. The main line is the «Cape—Kimberley—Pretoria» line, which has a number of branch lines.

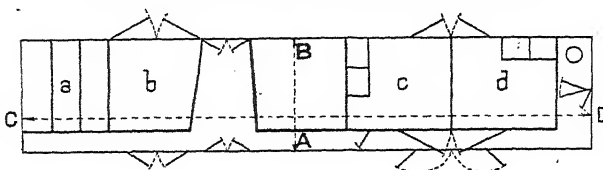
FIG. 3. - Cross sections of 4 cars used by the South African Railways and Harbours.



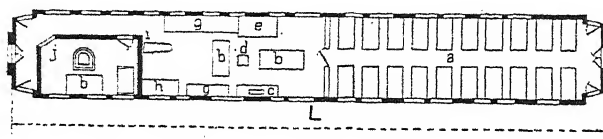
Veterinary research car. $L = 18.20$ m. $l = 2.10$ m. $l' = 2.35$ m.



Livestock car, a and c = fodder b = water.



Pig and fodder car. a = young pigs b = fodder c = boar d = pigs



Household Management Car. a = seats b = tables c = sink d = chair
e = kitchen g = cupboards h = refrigerator i = ironing board j = office.

SOUTH AFRICAN RAILWAYS AND HARBOURS.

AGRICULTURAL SERVICE. — The South African Railways Administration has never had a regular agricultural service, and at the present time does not undertake propaganda of any kind among the farmers. It would seem of interest however to give some account of an experiment made on the initiative of the Department of Agriculture and Forestry several years ago, consisting of running a demonstration train on the South African Railways.

DEMONSTRATION TRAIN. — The rolling stock making up the train was the property of the South African Railways and Harbours Administration and consisted in 13 cattle trucks and disused dining cars, the interior of which had been converted and arranged as exhibition and lecture rooms. The Department of Agriculture and Forestry contributed to the cost £ 5,000, and the whole for the internal equipment was valued at £ 1,000.

The demonstration train was prepared as and when required by the Department of Agriculture and Forestry, which decided the itinerary, undertook the staffing of the train by officers qualified in the various branches of agriculture,

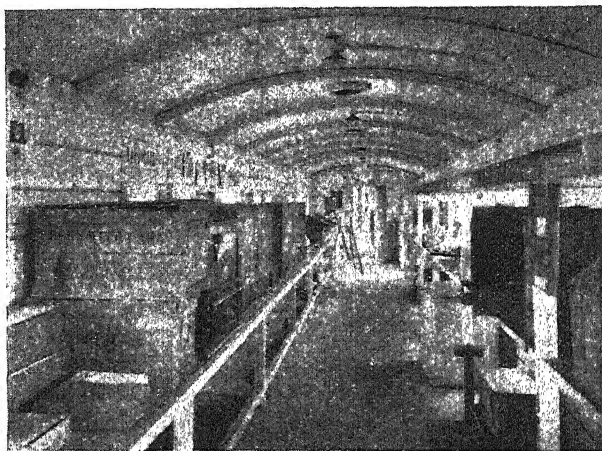


FIG. 4. — Poultry car.

the organisation of all advance publicity and the issue of all publications. The Railway Administration undertook merely the direction of the train services over the various sections concerned.

The object of the train was to bring modern knowledge to the population of the outlying districts and thereby to improve agricultural practices in the Union of South Africa. There can be little doubt that this demonstration train did much for the development of agriculture in South Africa.

Its success was in part due to the fact that it was run at frequent intervals throughout the year, carrying from 10 to 12 lecturers dealing with the various branches of agriculture. Reasons of economy and other difficulties however prevented the continuance of the service.

INTERNAL ARRANGEMENT OF THE DEMONSTRATION TRAIN. — The 13 cars were admirably arranged and entirely suitable for the purpose.

(1) The *Horticultural car* was a transformed cattle truck. Various types of ploughs were shown, a cultivator, rakes and hoes, sprayers, etc. Metal receptacles for gathering fruit, etc., and packing plant were also shown. Maps and diagrams were displayed on the walls. (2) The *sheep car* was also a cattle truck arranged with a central passage way and on each side a large and small

pen in which the sheep were placed, separated by a compartment containing fodder. (3) The *Veterinary research car* was a large dining car about 200 yards long, half of which was sub-divided into four small compartments in each of which there was a display of jars containing parasites infesting animals, diseased organs, poisonous plants, etc. The other half of the car was devoted to veterinary prophylaxis and to methods of research. (4) The *Chemical laboratory car* (a former dining car of the same dimensions as the other) included besides three small rooms, two large tables with all requirements for making chemical analyses. A sink was fitted in one of the tables: on the tables there were also upright panels to which were attached diagrams, plans and explanatory drawings. (5), (6) and (7) *Cotton and Tobacco, Crops, Cattle and Pigs* (see figs. 3) were old cattle trucks 40 by 10 feet, converted for the various purposes. (8) The *Poultry car*, which was a large cattle truck 54 feet long, displayed in one part methods of packing eggs, incubators and egg-testing apparatus, and in the other part live poultry. (9) The *Dairy car* (a former dining car) had seating accommodation for persons attending lectures at which the most modern dairy equipment was shown and explained. (10) The *Botanical car* (dining car) was divided into three compartments of almost equal size, holding charts and diagrams illustrating poisonous plants, plant diseases and the means of control; samples of cereals fodder plants and others took up a large proportion of the car. (11) The *Rural Engineering car* was a former cattle truck. (12) and (13) The *Wool and Household Management car* (see Fig. 3) measured 57 and 60 feet respectively. Everything connected with wool, woollen clothing, as well as all household matters, cooking, ironing, etc., were shown. In connection with household management, a woman demonstrator was on duty to show visitors the most recent improvements.

A. BOUSSINGAULT.

MISCELLANEOUS INFORMATION

AGRICULTURAL BROADCASTING IN FRANCE. — The review "Chambres d'Agriculture" (Series I, no. 3 20 février 1939) contains an interesting summary of the present position of agricultural broadcasting in France and suggests improvements which might be made to meet the wishes of listeners.

An international movement in favour of rural broadcasting has been started by the action of the Permanent Committee of the International Institute of Agriculture in Rome, of the International Confederation of Agriculture (18, rue de Bellechasse, Paris 7^e) and of the International Centre of Rural Broadcasting; in view of this activity and of the efforts made by a number of countries for systematic development of wireless for the instruction and entertainment of rural listeners, the Permanent Assembly of the Presidents of the Chambers of Agriculture have initiated an enquiry in France into this important means of diffusion of information. The object of this enquiry is to collect the views of the Chambers of Agriculture and of farmers on the present methods of diffusing information and instruction by rural broadcasting, for the purpose of co-ordinating and improving the transmissions.

The general lines of this enquiry were published in No. B 3 of April 10 1938 of the review "Chambres d'Agriculture".

Many agricultural journals, the more important daily papers and periodicals have called the attention of their readers to this enquiry. A large number of answers to the detailed questionnaire accompanying the enquiry have been received by the offices of the Permanent Assembly of the Presidents of the Chambers of Agriculture. These have been analysed carefully so as to enable a general report to be prepared. This report has been forwarded to the Minister of Posts, Telegraph and Telephone Services who, on November 7, 1938, had asked for the opinion of the Permanent Assembly of Presidents of Chambers of Agriculture on the subject of Rural Broadcasting and farming talks. The report summarises the principal complaints of listeners on the agricultural broadcasts and suggests certain rearrangements.

Rural broadcasting may undoubtedly become a leading factor in the improvement of the social conditions of the country dwellers and in their intellectual progress. For this reason, it would appear essential to improve the technical conditions of transmission and reception and to undertake an active propaganda scheme for the adoption of wireless programmes really adapted to the requirements of farmers. These programmes should be so planned as to ensure that wireless will contribute to the organisation of leisure time in the country, raise the status of farming, and finally do its part in the diffusion of farming knowledge and in agricultural education. Listeners showed in their replies that they much prefer regular broadcasts given at fixed hours, and dealing with a range of subjects treated simply and practically.

Longer and more important broadcasts might be given in winter; in summer, when there is much outdoor work to be done, they might be limited to the market prices of farm products, weather reports and forecasts and to advice on topical subjects. The most suitable times are meal-times, especially the supper hour.

If these suggestions are to be effective it is desirable to allow rural listeners to express their views on the Management Councils of the State Broadcasting stations and on the Higher Council where, up to now in spite of the efforts made in this direction by the Permanent Assembly of Presidents of Chambers of Agriculture, they have had practically no representation.

An appendix to the report gives a table of the agricultural broadcasts of the State and private broadcasting stations, and a model time table for the winter and summer months, based on the views of the rural listeners who have replied to the enquiry.

G. R.

THIRD INTERNATIONAL CONGRESS OF AGRICULTURAL ENGINEERING (ROME 20 TO 23 SEPTEMBER 1939). — This Congress, which will be held in Rome from 20 to 23 September 1939, has been called on the initiative of the International Commission of Agricultural Engineering, the headquarters of which are at the State Agricultural Institute, Gembloux (Belgium).

The first International Agricultural Engineering Congress was held at Liège in 1930, and the second at Madrid in 1935.

The programme of the Third International Agricultural Engineering Congress was prepared by the International Commission, at the Paris meeting of May 1937; it was ratified later at the 1938 meeting.

The organisation of the third International Congress of Agricultural Engineering has been placed in the hands of the F. I. T. A. (International Federation of Agricultural Experts) under the auspices of the International Commission at Gembloux.

The Third Congress will be held at the International Institute of Agriculture.

PROGRAMME OF THE CONGRESS.

1st Section. — Chairman: Mr. DISERENS (Switzerland): I. Surface water drainage. II. Problems relating to irrigation. (Amount of water to be supplied according to soil conditions). III. Integral land reclamation, from the point of view of agricultural engineering (Economic considerations).

2nd Section. — Chairman: Mr. ARRUE (Spain): I. Ventilation and hygiene of stables and sheds. II. Planning and distribution of farm buildings. III. Storing of farm products and crops.

3rd Section. — Chairman: Mr. COUPAN (France): I. Generation of power by means of gas generators. Vegetal and mineral fuels for gas generators. Adaptation of gas generators to farm vehicles. II. Studies relating to soil mechanics. III. Standardization of machine testing. IV. Standardization of machine parts. V. Agricultural applications of electricity.

4th Section. — Chairman: Mr. MICHELI (Italy): I. Farm machinery considered from a social point of view. II. Influence of engines in farm economics. III. Scientific organization of work in agriculture: (a) in research stations; (b) in Institutes and Schools.

For all information relating to the Congress, application should be made to the General Secretariat, Rome, Via Regina Elena 86.

G. R.

The INDIAN CENTRAL JUTE COMMITTEE. — This Committee, the establishment of which was recommended by the Royal Commission on Agriculture (1928), was set up under a Government of India resolution dated May 28th 1938. The Committee consists of agricultural and scientific experts and an equal number of representatives of the Indian Jute industry. The programme of work includes: (1) enquiry into the marketing and transport of jute and its products; (2) agricultural research and supply of improved seed; (3) technological research such as the spinning quality and the correlation, if any, between this and the measureable characteristics of the fibre; (4) a full crop census—both by census and random sampling methods—chiefly with the aim of meeting the urgent need of improving the accuracy of the jute forecasts; (5) collection and distribution of statistical information on the world demand for jute so as to assist Indian growers to decide on the acreage to be planted to jute from year to year; (6) advice to jute growing provinces on acreage, standardisation of quality and grade, legislation regarding standard weights and measures, establishment of regulated markets on an experimental basis, etc.

The Committee will have its own laboratories and has been greatly assisted so far by the Governments of Bengal, Bihar, and Assam in the matter of agricultural research, forecast improvement and district propaganda. It publishes a monthly bulletin.

G. T. K.

BOOK NOTICES *

CESCONI Giovanni, *La Cellulosa*, Roma 1939, 250 pp., 100 figs., 4 plates., 20 It. lire.

[This work on cellulose begins with a study of the plant tissues and describes the morphological characters of the celluloses including those of straw, ordinary cane (*Arundo donax*), bamboo, alfa-grass (*Stipa tenacissima*), sorgho stalks, maize stalks, hemp stalks after decortication, genista and tobacco. The methods of manufacture, of wood and straw cellulose in particular, are then described. Several chapters are devoted to the paper industry, to artificial textiles derived from cellulose, viscose products and to the products obtained from cellulose derivatives.,,

The last part of the book deals with economic aspects and discusses the world cellulose problem and the prospects of wooded countries and of those in which timber exploitation has made great inroads. Finally, the question is examined from the Italian standpoint with particular reference to the recent efforts to utilise raw materials produced in Italy and in the Italian colonies. The conclusions are optimistic. "When the raw material problem is solved, the cellulose industry will flourish also in Italy. Transformation of vegetable materials into cellulose will be done almost entirely with home-produced raw materials and by Italian labour.

The work is abundantly illustrated and provides a clear guide for experts interested in industrial cellulose production].

G. R.

GAROGGIO Pier Giovanni, *L'olio d'oliva e la sua industria*. Firenze, 1939 (Edizione de «Il Progresso vinicolo ed oleario»), 527 pp. 45 It. lire.

[This work on olive-oil and the olive-oil industry is mainly written for Italian university students and for all olive-oil producers. The first of its four parts deals with olive-oil extraction. After an historical introduction and a description of the raw material (composition, methods of harvesting and conservation), the author reviews the various industrial operations that make up the normal cycle of work in a modern oil factory. The attention of the reader is directed to the new objectives of the technique of olive-oil production and to the full utilisation of by-products.

The second part deals with olive-oil from the chemical, physical and microbiological points of view. The properties of olive-oil, the physical and chemical constants, analysis and detection of fraud and deterioration during extraction and conservation are studied in detail. Rancidity is described in great detail and more fully than in any other book on olive-oil.

* The third part (olive-oil and consumption requirements) examines defects of oils and their industrial rectification and describes the nutritional and therapeutic properties of olive-oil and the grading and marketing of oils.

The fourth part contains some information on the chemical products used in oil factories and in associated industries. The bibliography would be more useful if it were supplemented by an alphabetical index.

Professor Garoglio's book is a valuable contribution to the study of a subject of great importance to Mediterranean countries. The writing and the presentation of the book deserve unqualified praise].

G. R.

* Under this heading are included short synopses of books received for review.

SCHWIND R., Der Einfluss von Grubber, Pflug, Klausing-Pflug und Fräse auf Wachstumbedingungen unserer Kulturpflanzen; ein sechsjähriger Bodenbearbeitungsversuch. *Aus dem Institut für Pflanzenbau und Pflanzenzüchtung der Ludwigs-Universität Giessen*, 55 pp. 1938.

[The author presents the results of six years of research on the use of cultivators, ploughs, Klausing ploughs and rotary tillers on deep, heavy alluvial soils. These researches were undertaken to discover the effect on soils of different methods of tillage.

Having regard to all the factors affecting the growth of plants, the researches prove that, on given soils which are normally watered and not deficient in lime, a good ploughing at the right time is the most advantageous and the most efficacious method of cultivation. In the light of his experiments the author rejects the continual use of the cultivator and the rotary tiller, for these implements cannot replace the plough.

The effects of the different cultural methods on the structure, temperature, reaction and nutritive substances of soil are indicated briefly below.

Soil structure. — Analysis shows that, after treatment with the rotary tiller, the soil bed has maximum porosity. This quality, however, disappears in winter. Only the upper parts of the soil worked with a rotary tiller retain maximum porosity throughout the year. Ploughing with the ordinary plough or the Klausing plough is more effective in the long run on the deeper beds. Working with the cultivator has been shown to be the least suitable method as regards the soil structure, of the deeper parts of the tilth. Only in special cases, for example, immediately after working or at the time of hoeing, is the degree of porosity higher than that obtained by the three other methods.

Soil humidity. — Soil moisture depends on the amount of rainfall and the condition of the crops. Working with the plough, the Klausing plough in particular, allows the greatest quantity of water to arrive at the depths reached by the plant roots in the shortest time. Lands treated with the rotary tiller show the greatest variations in humidity, that is the greatest absorption of water at the time of precipitation and plough and the highest evaporation in times of drought.

Soil temperature. — Lands worked with the rotary tiller showed the most favourable conditions of growth in the early months of the year while treatments most suitable for growth were, in descending order, the use of the cultivator, the Klausing the ordinary plough.

Soil reaction. — The working of the soil had a considerable influence on the acidity of a heavy soil. Even in the first years, surface ploughing (cultivator and rotary tiller) produced signs of acidification. Working with the plough, however, also brought out at the end of four years at the latest, signs of increasing impoverishment. Hence the need for liming every three or four years. The Klausing plough caused no acidification of the soil during the six years of experiments.

Nutritive substances. — Acidity induced by superficial ploughing caused fixation of phosphoric acid whereas deep ploughing with the Klausing plough assisted solution.

Crops. — On the whole, on lands given a superficial ploughing (with the cultivator or the rotary tiller) yields decreased during the year. Deep ploughing resulted in a better individual development of plants and, consequently, at least for cereals, reduced the quantity of seed necessary].

**NEW PERIODICALS RECEIVED BY THE LIBRARY
OF THE INTERNATIONAL INSTITUTE OF AGRICULTURE
for the first quarter of 1939 (*).**

- AGRICULTOR puertorriqueño. Asociación de agricultores de Puerto Rico. San Juan, v. 18 (1938) - mens. \$ 2 int.; \$ 3 étr.
- AGRICULTURE; revue mensuelle technique et économique (publiée par les Ingénieurs agricoles). Paris, v. 3 (1939) - 40 fr. int.; 50 ou 60 fr. étr.
- AUSTRALIAN forestry; the journal of the Institute of foresters of Australia. Perth, v. 1 (1938) - sem. 15s.
- AUTARCHIA alimentare. R. Azienda monopolio banane. Roma, Tumminelli & C., v. 1 (1938) - mens. L. 60.
- BRÉSIL. Departamento nacional da produção vegetal. Serviço de fomento da produção vegetal. 4ª Secção tecnica. *Publicação*. Rio de Janeiro, Directoria de estatistica da produção. Secção de publicidade. nº 2 (1937) - irr.
- CONTEMPORARY Manchuria. Dairen, South Manchuria railway Co. v. 2 (1938) - bimestr. Y. 6.
- DEUTSCHES Warmblut; neue Folge der « Zeitschrift für Gestützkunde und Pferdezucht ». Berlin, v. 34 (1939) - mens. RM. 12 int.; RM. 12,60 étr.
- FIBRE tessili; rassegna corporativa dei problemi delle tessili nazionali e dell'Impero. Roma, n. 1 (1938) - mens. L. 50 int.; L. 80 étr.
- FRIESIA; nordisk mykologisk tidsskrift. Foreningen til svampekundskabens fremme. København. v. 1 (1932) - irr. 3 Kr. int.; 5 Kr. étr. [Mycological review of Scandinavian countries.].
- GARTENFLORA. Neue Folge, Blätter für Garten- und Blumenkunde... Berlin, Deutsche Gartenbau-Gesellschaft, v. 87 (1938) - sem.
- GIARDINO fiorito; rivista... della Società italiana « Amici dei fiori ». Firenze, v. 8 (1938) - mens. L. 30 int.; L. 45 étr.
- ITALIE. Ministero dell'Africa italiana. Regia azienda monopolio banane. *Bollettino di informazioni*. Roma, nº 1 (1938) - mens.
- JOURNAL of the South African forestry association. Pretoria, v. 1 (1938) - sem. 6s. 1s. 6d.
- MEDEDEELINGEN van de Rubber-stichting. Communications de la Fondation du caoutchouc. Amsterdam nº 4 (1937) - irr. [Editions also in English or German].

(*) *List of abbreviations*: bihebd. (biweekly); bimens. (twice monthly); bimestr. (every two months); déc. (every ten days); étr. (foreign price); fasc. (copy); hebdom. (weekly); int. (home price); irr. (irregular); mens. (monthly); nº (number); N. S. (new series); p. a. (per annum); q. (daily); sem. (half yearly); s. (series); trihebd. (every three weeks); v. (volume); trim. (quarterly).

N. B. — Between brackets [/] are given translations and explanatory notes not appearing in the title of the review.

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OF

AGRICULTURAL SCIENCE AND PRACTICE

CANDELILLA: A TECHNICAL AND ECONOMIC STUDY

(Concluded)

CHAPTER II. — THE ECONOMIC ASPECTS OF CANDELILLA EXPLOITATION

(a) FORMS OF EXPLOITATION.

The forms of Candelilla exploitation are noticeably different from those adopted for other agricultural products. The three most common are the following:—

- (1) Crop-sharing.
- (2) Leasing.
- (3) Direct exploitation by the owner.

(1) *Crop-sharing* is one of the most usual methods of exploitation followed in Mexico. It is based essentially on a contract between the owner of the land and the crop-sharer, who receives a percentage of the value of production. This percentage varies from 7 to 12 per cent. and can be established on the basis of either the refined or the raw wax.

Sums varying with the extent and intensity of exploitation are paid to the landowner each month by the crop-sharer who also pays the forest tax and all costs of production.

Crop-sharers are generally traders who sell the wax as an indirect means of increasing the sale of articles of prime necessity. The crop-sharer does not undertake Candelilla extraction himself, but leaves this task to concessionaires who take all responsibility for the work of extraction. The crop-sharer bears the expenses incurred in the purchase of equipment, sulphuric acid, and in some cases, the transport of the plant.

The concessionaire bears the expense of picking, transporting and processing the plant up to the point of obtaining the raw wax. He then sells the product to the crop-sharer at prices varying from 0.35 to 0.55 Mexican pesos per kilogram according to the costs of extraction. Generally speaking, concessionaires are persons without capital, small farmers, etc., and are often chosen from among the labourers on large farms. In order to carry out the terms of their contracts, the concessionnaires employ labourers or combine with their

companions. In the former case, a wage-earner can make from 1.50 to 2 Mexican pesos daily; when several concessionaires work together, they divide the profits which may amount to 3 to 6 pesos per head per day. Such partnerships are rare, however, more than 60 per cent of the output being produced by wage labour.

Candelilla wax factories are usually situated in desert regions, far from trading centres and badly served by communications. All articles of prime necessity consumed by the workers and their families have therefore to be transported to the centre of exploitation. A concessionaire is appointed in each factory to attend to purchases and to protect the crop-sharer's interests; he also attends to the feeding of the workers, supervising the work and purchasing all the raw wax produced in the factory and in the neighbourhood of the camp.

(2) *Leasing*. — This form of exploitation is very similar to crop-sharing, the only difference being that the rent is fixed and independent of production. This form of exploitation is not very general but is characteristic of certain regions in the State of Durango. The lessees pay a monthly rent of 100 to 135 Mexican pesos, thus acquiring the right to exploit an area, theoretically undefined, of the great tracts of land where the Candelilla grows. Under these conditions the farmer can thus extract all the wax which his means and equipment are capable of producing.

Of all the different forms of exploitation, this is the most advantageous for the exploiter since the amount of production does not depend on the rent paid; it has, however, the disadvantage that it requires exploitation on a large scale, a system not always practicable for the small independent producer.

(3) *Direct exploitation by the landowner*. — This form of exploitation is carried on in different ways according to whether it is practised by owners of large or medium-sized properties, small-holders or *ejidos* *. The first group is unimportant because few landowners of this class are interested in the extraction of Candelilla wax.

A large number of smallholders work in cooperation with the large-scale farmers and receive payment from the latter in the form of machinery and loans for paying their workers. The smallholder may work with the large farmers or not as he pleases but, in any case, he himself supervises his sales, pays his workers or gives them a percentage on production. The smallholder may also act as a selling agent for the large farmers, in which case he is paid by the large scale producers or by the exporters.

The *ejidos* work in the same way as small producers. A purchasing agent is appointed to check all raw wax produced and to make advance payments when necessary. There are several cooperative enterprises of the *ejido* type. Several have, however, been abandoned, and now exist only as intermediaries to facilitate the work of the large producers. In many *ejidos*, forest exploita-

* A group of farmers owning land in common.

tion permits are given by the large landowners to a certain number of cooperative farms as an advance on future purchases of raw wax.

In each cooperative, work is done individually, only the sales being made in common. Each member of the community receives in payment the value of his output less the general expenses and personal or collective advances. In some cases, the more intelligent members of these cooperatives try to take on workers from among their comrades at their own expense in order to secure more intensive exploitation for their personal profit.

Advances in cash or in goods are controlled by the nearest merchant who thus centralises almost all the trade of the *ejidos*.

Production by *ejidos* is very insignificant and scarcely amounts to 3 per cent. of the total output.

(b) PROFITS OBTAINED FROM EXPLOITATION.

As we saw above, exploitation costs are borne in unequal parts by the landowners, the crop-sharers or lessees, and the concessionaires. Profits are shared in the same way. The concessionaire receives a cash wage of 5 Mexican pesos daily, and, at the end of the season a share of the profits, amounting to about 8 per cent. The landowner receives only 10 per cent of the output or its equivalent in raw or refined wax. Crop-sharers or lessees undoubtedly stand to make most profit for they receive a cash wage of 15 pesos per day as well as a percentage of the profits, so that they can make almost 90 per cent of the total proceeds.

A profit of 300 to 500 pesos per ton of wax, varying according to the conditions of exploitation, may be expected.

(c) REFINING COSTS.

The raw wax produced in the factories is purchased by large trading firms (stockage) and then subjected to a refining process which dehydrates the raw product, eliminating all impurities.

Basins of every size are used in this refining process which is effected either by direct heat or by steam. A refining plant is composed mainly of a basin, a boiler, cement tanks, etc., the process being as follows: the raw wax is broken up into small pieces which are thrown into the basin and then subjected to prolonged boiling until completely dehydrated. To facilitate the refining process, sulphuric acid is again added together with a little common salt. During ebullition the wax is stirred constantly to remove all moisture. When the mass is the colour of *café au lait* evaporation may be considered complete and boiling may be suspended. The wax is then allowed to cool slowly in order to facilitate decanting, the impurities falling to the bottom of the basin and the wax coming to the top. It is then put into the cement tanks where the cooling process continues. After 48 hours the wax has solidified into large slabs.

* *Tec. 4 Engl.*

The process of refining costs at least 13 *pesos* per ton made up as follows:

Refining	2.50 pesos
Workers' wages.	3 pesos
Acid and sundry ingredients	2.50 pesos
Fuel	3 pesos
Machinery and tools	2 pesos

(d) PACKING COSTS.

The wax is then broken into small pieces and despatched in sacks containing 80 kg. net. The cost of the various operations required for putting the product into sacks and weighing, together with the price of the sacks, etc., is very high, amounting to about 16 *pesos* per ton of wax. Sacks are not the best method of packing as they lead to a loss of about 1 per cent. and are easily torn, causing further loss to traders. A better method would be to grind the wax and pack it in cardboard boxes, for this would keep the product in better condition and eliminate part of the loss incurred through packing in sacks.

(e) GENERAL CHARACTERISTICS OF CANDELILLA EXPLOITATION.

The natural growth of the Candelilla plant takes place during the rainy season (June to September). Exploitation is not carried out regularly throughout the year, but varies in intensity, being at its height during the winter months. Little wax is extracted during the rainy season.

The wax, as we have seen, is a secretion produced by the plant as a protection against evaporation; hence the reserves, and consequently the yield, increase in winter. Workers, too, are generally unemployed in winter and wax extraction makes it possible to provide work during a slack period.

There are three factors limiting the future exploitation of the Candelilla plant:

1. Lack of water
2. Exhanstion of the plant
3. Disorganised production.

Extraction is concentrated in the vicinity of water. Livestock rearing and Candelilla exploitation are therefore dependent on the same fundamental natural element: i.e. water. Hence, the two activities are complementary to each other. Nevertheless, as things stand at present, the plant being excessively exploited and the livestock aggravating the destruction begun by the farmer, Candelilla is becoming daily less important as an extractive industry. Since water is one of the factors restricting exploitation, it would be interesting to make an exact estimate of the Candelilla available for exploitation, i.e. situated in the vicinity of water and means of communications.

The economic future of the industry has certain favourable aspects, provided the plant is cultivated and farmers are advised to make tests to determine the possibility of reproduction by means of stem or root suckers.

In regard to the second point (exhaustion of the plant), the poor yield obtained from extraction (50 per cent. of the wax content of the plant), involves a high rate of exhaustion, as it takes 50 tons of raw material to produce one ton of wax. This high consumption will rapidly exhaust the easily exploitable natural growth and, if a rise in price does not compensate the increase in costs resulting from extension of the exploited areas, production will become an extremely hazardous undertaking. It is therefore absolutely essential to adopt improved methods of extraction. Candelilla exploitation consequently passes through periods of crisis and overproduction on the local markets due to speculation and competition from other similar types of wax whose production is better organised and not liable to speculation. It has been observed that many foreign consumers using Candelilla wax in the manufacture of various articles have been compelled to turn to other, similar products owing to the irregularity of the supply. A special organisation is thus needed in Mexico to control production and trade. Such an organisation might be set up on the lines of that already existing in Brazil for the control of Carnauba wax output and trade; the satisfactory results obtained by the Brazilian association can be seen in the favour with which this product is received on the market.

Candelilla wax is not appreciated as highly as Carnauba owing to its high resin content. Its price, however, is lower than its quality merits, Carnauba wax being quoted at three or four times the price of Candelilla. This enormous difference is due to the lack of organisation of production and marketing, rather than to any real difference in quality. Properly presented, Candelilla wax could compare satisfactorily with any other similar product.

Certain foreign consumers have complained of the irregularity of supplies, of a lack of standardisation and of impurities in the product, all circumstances which, as has been said above, oblige many manufacturers to use substitutes for Candelilla. Dealers and merchants are largely responsible for the irregularity of supply many of them exercising a real monopoly over very wide areas. Another reason is that crop-sharers or lessees exploit the plant merely with a view to making quick profits. Candelilla exploiters do not engage in the industry continuously, but consider it merely as a source of immediate profit, never as a permanent and prosperous industry.

CHAPTER III. — TRADE

(a) SUPPLY.

Candelilla wax factories are scattered and are generally found near inhabited centres. There are two methods of assembling supplies, one from large-scale and the other from small-scale production.

Small-scale independent production. — Small-scale producers encounter many difficulties in selling their product, as they do not command sufficient capital to refine the wax, despatch it in sacks, etc., and they are obliged to

have recourse to trading firms established in the centres nearest the point of production in order to obtain advances or else to sell their product at poor prices.

The serious disadvantages of this situation are increased by the disorganised state of the Mexican market, even fairly large producers having no connections with foreign importers and thus finding themselves obliged to sell their product to intermediaries in Mexico, which complicates trading and reduces the price paid to the producer.

Production was controlled for a long time by the village shops which found in the purchase of raw wax an easy and sure means of selling their own goods under highly favourable conditions. A large or small shop with wax as its principal source of trade is to be found in nearly every production area. Advances in money or in kind constitute one of the surest methods of effecting these operations. Although in most cases local purchasers are merely commission or sales agents for larger firms or for the big export houses, occasionally they have their own customers abroad and act as exporters on a small-scale.

Large-scale production. — Large-scale production is practised by firms specialised in dealing in Candelilla wax. Sometimes these firms extend their control of production to sales on foreign markets but as such cases are not at all frequent, local purchasing by large-scale producers only will be described. It has already been seen that each crop-sharer or lessee producing candelilla wax signs a production contract with the workers living on the exploited area. Under this contract they undertake, among other things, to purchase all the raw wax produced at an agreed price. The factories are supervised by an employee appointed by the exploiter whose chief duty is to purchase all the raw wax produced in the factory and the small quantities which may be produced independently in the neighbourhood. He also refines the product and prepares it for export. When production is carried on on a large-scale, the wax is purchased at the point of production. The cost of concentrating the product in the export centres is borne by the lessee or crop-sharer.

In the case of small-scale independent production, the cost of transporting the wax to the nearest village for sale to the local trader is generally defrayed by the small-scale producer. Large-scale producers often run purchasing agencies in the various localities which collect supplies.

According to available statistics, wax stocks are assembled in the following regions: Cuatro Ciénegas, Monterrey, Reata, San Pedro, Chihuahua and Villa Frontera. As the industry of wax extraction develops, the number of collecting centres tends to increase yearly.

(b) THE STATE AND CANDELILLA EXTRACTION.

State intervention has so far been confined to fiscal measures and has been inadequate as regards control of exploitation permits, so that large plantations of Candelilla have had to be exploited without authorisation from the forest authorities. Exploitation permits have also been given in areas where Candelilla

is unknown or where the plant processed has been stolen from other areas. There are no stipulations concerning the quality of the wax nor have any steps been taken to control and regulate production. The forest authorities have not yet made any provision against the danger of exhaustion of the plant following excessive exploitation. It is therefore desirable to work out a rational form of exploitation which would provide a technical basis for protective legislation for this important forest industry.

(c) TAXES.

Production is taxed at the rate of 25 pesos per ton of wax or its equivalent of 0.05 pesos per ton of the plant. This tax is divided between the municipality, the State and the federation (federation 50 per cent., State 30 per cent., municipality, 20 per cent.). An estimate of the sums received by these three departments may easily be made from the production figures. In 1935 the sum totalled almost 24,000 pesos.

Apart from the forest tax, a duty of 12 per cent. is also imposed by the State on railway transport costs, as well as 2.2 per cent. of the shipping freights and 15 per cent. of the value of the cargo. In 1933 the value of Candelilla wax produced in the State of Coahuilla amounted to 18 per cent. of the total value of the forestry production of that State. An idea of the importance of this industry may be obtained from these figures.

(d) FINANCING SUPPLIES.

The method of financing Candelilla wax supplies differs according to the terms of the contract between the trader and the exporter. The product is often bought by the local trader who finds in the purchase of wax the best means of selling his own goods at the highest price; he makes loans to small-scale producers in cash or in kind on the security of future wax deliveries. Independent traders offer their product to exporters, selling it to the highest bidder. In other cases, the traders are buyers or else commission agents for exporters and they purchase the wax for the export house from whom they obtain grants in order to be able to make loans.

The trader may have a fixed commission per ton as payment or he may undertake to purchase at a given top price, in which case he may make good profit out of the difference between the actual purchase price and that obtained from the exporter; the greater the difference between the two prices and the greater his volume of trade, the larger his profit.

Nearly all exporters have agents in the various production areas to deal with the small-scale producer. Two cases may be cited to give an idea of the monthly profits obtained by sales agents. A sales agent in the Cuatro Ciénegas region makes a monthly profit varying between 300 and 500 pesos. An agent in the Bustamante region makes from 300 to 400 pesos monthly. Larger profits are made by traders who make advances in kind. Sales agents

registered in the Candelilla Wax Producers' Credit Union make from 15 to 20 pesos per ton.

Exporters are trading firms possessing resources and credit in nearly all the banking institutions in the region. They give credit to small-scale producers. Small-scale exporters and producers are often obliged to apply to large export firms for credit on the security of future wax deliveries. This system has certain disadvantages because the large export houses always make their sales contract at very low rates notwithstanding the high prices the product may fetch.

All the above information regarding the financial organisation of the Candelilla wax trade relates to conditions which ruled for many years. The situation has now changed owing to the intervention of the Candelilla Wax Producers' Credit Union. The National Foreign Trade Bank has been appointed to administer credits for the Union. On the formation of the National Union of Wax Producers nearly all the small export firms and the large-scale producers applied for membership in this organisation as well as in the Credit Union.

Candelilla wax is a product which is easily stored and it therefore lends itself to speculation. Exporters have controlled trade in their own interests to the serious prejudice of small-scale producers and exporters. Among the methods of speculation employed by large export houses is that of creating a fictitious increase in demand.

Under the new organisation, the National Union of Candelilla Wax Producers, according to the terms of its Statute, forms a group of all the principal export firms and monopolises the Candelilla wax trade to a great extent, thus putting a stop to these forms of speculation.

(e) LOCAL EXPORT PRICES.

Local traders sell the wax at prices varying according to conditions. In June 1937 exporters paid prices fluctuating between 0.70 and 0.90 pesos per kg. of refined wax. Small-scale producers can hardly ever sell their product as refined wax because the small traders and exporters usually process the raw wax themselves in order to obtain a standard product. This situation has had a serious effect on the precarious conditions under which small-scale producers work. It may also happen that wax purchased as raw wax is sold direct to the foreign market as the refined product.

(f) HOME CONSUMPTION.

In order to form an idea of Mexican wax consumption, a study must be made of annual exports and surpluses for each of the years for which it is desired to ascertain consumption. Between 1920 and 1935 Mexico imported a yearly average of 25 tons of wax and consumed 40 tons of home-produced

wax. It may therefore be estimated that annual consumption in Mexico amounts to 65 tons. Mexican imports of vegetable wax come chiefly from the United States, Germany and Brazil.

(g) CANDELILLA WAX EXPORTS.

From available figures of exports between 1918 and 1936, it appears that this period should be considered in three sections in order to understand the variations due to the decrease in the number of importing countries. These periods are: 1918 to 1923, 1924 to 1930 and 1931 to 1936. During the first period all exports went to the United States. During the second, exports were shipped to eleven countries and were, on the whole, very irregular except in the case of two countries, the United States and Germany, which constituted the principal markets. During the third period, most of the imports went to six countries, the share of each of these six importing countries in 1936 being as follows:

United States	69.85 %
Germany.	14.20 %
France.	8.00 %
Great Britain	3.50 %
Netherlands	2.12 %
Belgium	1.20 %

The United States have been a permanent market for Mexican wax ever since 1900; Germany has been a purchaser since 1927, France since 1929 and Great Britain, the Netherlands and Belgium since 1934.

Almost all exports are shipped from Tampico. Exports to North America formerly crossed the frontier at Nuevo Laredo, but owing to the high cost of transport by land, exports to the United States are now forwarded also through Tampico.

MIGUEL GARCIA CRUZ.

THE EXTENT OF BOVINE TUBERCULOSIS AND OF BRUCELLOSIS IN HUNGARY AND THE ORGANISATION OF CONTROL MEASURES

The extent of bovine tuberculosis is in close relation with the type of stock farming practised. The more intensive the farming, especially in dairy farming, the more cows will be found to the shed. In consequence the risk of infection is much greater, while the resistance of the animals to disease is lower, as a result of stall-feeding and of the effort made to obtain a high milk yield. This is proved from the statistics of the Budapest Abattoirs, relating to the cattle of the Hungarian steppe breed. Some decades ago, tuberculosis was practically unknown among the breeding stock of the Hungarian steppe long-horned cattle which passed the greater part of their existence on grazing lands in the open air. When this breed also was stalled, cases of tuberculosis began to be noted in numbers that showed a steady increase. Up to the first years of the present century (1899-1902), however, the proportion of animals affected, among the breeding stock of this breed, amounted only to 4 to 6.1 per cent., whereas among the coloured breeds of cattle (in particular the Alpine breeds) the proportion of animals affected was from 14.8 to 17.8 per cent. It should be noted in this connection that steers of the steppe breed were affected in the proportion of from 13.6 to 18 per cent., these steers being already stall-fed to the same extent as the breeding stock of the coloured breeds.

From the beginning of this century there was a rapid increase in infection both among the steppe cattle and among the coloured breeds, partly because stall-feeding was increasingly adopted, partly on account of the methods used to stimulate milk yields. About 1905 the infection was approaching its maximum intensity and has since remained comparatively constant, as will be seen from Table I.

TABLE I. — *Percentage of Cattle over a year old with Tuberculosis Symptoms.*

Year	Cattle of grey steppe breed				Cattle of coloured breeds			
	Bulls	Steers	Cows	Total	Bulls	Steers	Cows	Total
1905.	7.3	18.0	11.0	16.6	7.6	13.0	27.0	21.6
1929.	8.9	20.6	12.3	18.2	12.1	20.0	26.7	22.0
1930.	10.3	21.1	11.2	17.4	13.5	17.3	27.6	22.4
1931.	13.8	21.9	14.4	20.0	13.4	20.3	26.1	22.3
1932.	15.2	24.5	21.2	26.9	13.3	22.0	33.8	25.5
1933.	6.5	15.9	15.2	15.6	11.6	16.8	20.6	17.8
1934.	8.8	22.6	12.4	20.2	12.6	19.5	26.2	21.8
1935.	9.5	22.3	12.0	20.3	12.5	18.9	26.2	22.0
1936.	10.2	22.6	12.1	19.0	12.5	18.7	26.2	22.5
1937.	8.6	22.5	12.4	18.4	12.5	18.7	26.4	22.9
1938.	7.3	22.3	12.8	20.0	12.7	18.8	26.2	21.4

This table is based on the statistics of the Budapest Abattoirs: the figures shown relate to the percentage of animals over one year old, in which tuberculosis symptoms were observed. The figures of the last ten years (1929-1938) show that some degree of equilibrium has been attained in respect of the disease, that is to say, that slightly aggravated conditions in one year are balanced by a slight improvement in the following year. These fluctuations are not due to any real increase, or decrease, in the disease, but merely to the fact that, for economic reasons, sometimes older and sometimes younger animals are slaughtered. Tuberculous infection, as is well known, increases, with age; this may be seen also in the figures of the Budapest Abattoirs where, for example for the year 1929, the percentages of the cases shown in Table I are stated according to the age of the animals.

TABLE II. — *Percentage of Cattle over one year old with Tuberculosis Symptoms in 1929, by ages.*

Age in years	Cattle of the grey steppe breed			Cattle of coloured breeds		
	Bulls	Steers	Cows	Bulls	Steers	Cows
1	2.0	2.0	1.0	2.4	1.7	1.2
2	1.8	2.0	1.5	2.3	3.1	1.8
3	2.6	4.0	3.3	3.5	4.3	4.0
4	5.6	4.2	5.6	6.7	6.5	6.6
5	4.9	8.1	8.6	9.8	12.9	10.4
6	9.8	13.9	14.9	17.2	16.4	20.9
7	11.8	20.0	19.3	21.7	26.2	26.7
8	26.7	28.1	25.7	27.8	32.6	33.9
9	33.3	37.6	33.1	33.5	37.2	38.7
Over 9	41.1	38.9	35.6	40.4	39.7	39.5

For this same reason, from these statistics of the Budapest Abattoirs it is impossible to calculate the exact average percentage of the animals affected, as the older animals are usually slaughtered. Thus, the actual intensity of the infection is considerably less than would appear and cannot be determined precisely. Certain conclusions of some interest may, none the less, be drawn from the slaughterhouse statistics; the degree of infection indicated may be compared with that in other countries, and, in particular, the progress of the infection over a given period in a region may be determined with a probability almost approaching certainty.

The Budapest Abattoir statistics, based on careful investigations made each year in respect of 35,000 to 60,000 animals over a year old, point to the conclusion that the degree of infection of Hungarian cattle, in consequence apparently of special economic conditions in Hungary, remains below that in a number of other countries, and that, for more than a decade, it has stood at a peak level which is not likely to be exceeded in the near future.

It may further be noted that from 1929 to 1938, some 70,000 to 130,000 calves were slaughtered at Budapest, of which the percentage affected by tuberculosis varied only from 0.06 to 0.1 per cent.

In spite of the exactness of the statistics available, it is impossible to calculate the economic loss due to bovine tuberculosis in Hungary. It is also impracticable to determine with any precision the losses due to meat which is unfit for consumption, as the available data merely indicate the percentage of cattle in which tuberculosis symptoms have been observed. In these statistics are included: animals merely showing a primary symptom already cured or in process of cure, that is, an unimportant tubercular affection, animals in which the tuberculosis is confined to certain hardened cores in one or other organ, animals in which there is an acute and widespread form of tuberculosis, etc. Losses in meat vary considerably, however, according to the form taken by the disease. The records made by the Budapest Abattoirs indicate only cases where the whole carcass was declared unfit for food. The percentage of such animals, slaughtered at over one year old, varies, from 0.20 to 0.44.

TABLE III. — *Herds subject to State Inspection.*

Year	Herds inspected	Tuberculosis-free herds	Number of cattle in the herds tuberculosis-free
1930	24	0	—
1931	74	8 = 10.8 %	1,524
1932	79	17 = 21.5 %	2,939
1933	113	29 = 25.6 %	3,959
1934	129	49 = 38.1 %	6,042
1935	120	68 = 56.7 %	7,562
1936	127	97 = 76.6 %	9,089
1937	129	108 = 83.7 %	10,870
1938	124	108 = 87.0 %	10,891

Control measures were first introduced in 1930. The process of eradication by the BANG method was adopted successfully at the time on a large number of farms, as the result of the action of HUTYRA and UJHELYI, but all such efforts were frustrated by the economic confusion consequent on the world war. It was sometime after the war that control by means of the BANG method was resumed, this method consisting in eliminating all animals giving a positive reaction to tuberculin, even if no other symptom occurs. This method is not compulsory but the State gives support and encouragement to its application. According to paragraphs 520-524 of Regulations giving effect to the new law on contagious diseases No. XIX-1928, owners of herds who have signified assent are bound to apply this method for a minimum period of five years, while the

State undertakes the cost of veterinary inspection of the herds, and declares any particular herd as completely freed from the infection. This declaration is a distinct advantage to the owner, in general and is reflected in his milk sales. Particulars of the somewhat small number of herds placed under the control scheme are shown in Table III.

Measures are also in force in Hungary for the elimination of animals with open symptoms of tuberculosis. In 1938 measures were first taken for preventing contagion from cows affected with mammary tuberculosis.

Since 1933, declaration of all open forms of bovine tuberculosis has been compulsory, in virtue of paragraphs 506-519 of the Regulations in pursuance of the law on contagious diseases already referred to. If the competent Services actually pronounce an animal to be affected by any recognisable form of the disease, it must be slaughtered at once by its owner, or at least the authorities see that it is consigned to the slaughter house; if for definite economic reasons the slaughter cannot be postponed, the owner receives a payment in compensation. If on the other hand, it is possible to postpone slaughter—the maximum period of such postponement being six weeks—the animal affected by a recognisable form of tuberculosis must be branded and isolated from the other cattle. After removal of such animals, the stabling is disinfected.

In the interest of public health, all products obtained from affected animals are subjected to a sanitary inspection; in particular, meat inspection which is carried out throughout Hungary, may be regarded as a model (paragraph 92 of the Regulations giving effect to the law on contagious diseases). Sales to consumers of milk containing the bacilli of tuberculosis are prohibited, and in order to ensure a supply of pure milk for the population, measures have been taken to build up healthy, dairy herds. In addition, the milk of cows affected with mammary tuberculosis must not be delivered to consumers in any form whatever; that of cows affected by any recognisable form of tuberculosis, or suspected of being so, may be delivered to consumers only after proper heating has been carried out.

Statistics on the extent of bovine brucellosis (or contagious abortion) in Hungary are not available, and thus it is impossible to give figures showing the economic losses caused by this disease. It may however be said that it is not at present of importance on small stock breeding farms, while on the larger farms it is not uncommon.

As regards control measures, attempts were at first made in Hungary to check this disease by means of purely hygienic precautions. These measures, highly commendable in themselves, were later replaced to some extent by prophylactic inoculations as recommended to breeders. It was however proved that, although the percentage of cases of abortion was considerably reduced by the inoculations, the epidemic could not be entirely checked by these means. In the light of certain post-war researches, the negative value of the inoculation had to be recognized; it was proved by these researches that, although a reduction in the number of cases of abortion was noted in the inoculated herds, this advantage was balanced, and even outweighed, by two disadvantages, namely, an increase in the sterility of the cows and in the septicaemias affections

of the calves. Hence, since 1930, the anti-brucellosis vaccine was no longer distributed, and the measures taken for control of the disease were exclusively hygienic in character, the object being to prevent the contagion; such measures, included precautions at the time of purchases of cattle, isolation of affected animals and blood analyses, separate stables for calving and also for cases of abortion, disinfection, etc. These measures are not compulsory, and no Government measures have been introduced in this respect. The Veterinary Services of the Ministry of Agriculture, however, have already for some time past been engaged on the drafting of measures for State inspection for the control of brucellosis, but no definitive action has yet been taken by the Government.

R. MANNINGER.

NEW TRENDS IN THE MANAGEMENT OF DAIRY CATTLE IN THE U. S. A.

In view of the economic situation of the dairy industry in the United States the costs of milk production have to be kept as low as possible. It has been realized that a very high milk production per cow, obtained by heavy feeding, is not necessarily the most economical form of production. Pasture and roughages are, as a rule, the cheapest sources of food for livestock; heavy rations of grain and concentrates tend in general to increase the production costs. Many experiment stations have therefore sought to determine whether the production costs of milk can be lowered by making more use of these cheap nutrients and by diminishing the heavy grain rations of the past.

Increasing the proportion of alfalfa hay in the ration of dairy cows.

The great value of *alfalfa* as a feed for dairy cows has long been realized. The surface sown to alfalfa in the United States is being steadily increased, not only because of its value as feed but also because of the high output which can be obtained per unit of area and of its importance as a soil improver.

Nevertheless, the general opinion was that rations of alfalfa hay ought to be supplemented by more or less considerable amounts of grain or other concentrated dairy feed. Recently, experiments have been carried out to determine the advantages or disadvantages of feeding alfalfa, exclusively in the form of hay, as a ration for dairy cows.

Such experiments were conducted some years ago by the Kansas Agricultural Experiment Station, and it was established that 1 pound of milk can be produced for each 2.24 pounds of alfalfa hay and 1 pound of butterfat for each 61.6 pounds of hay. The milk production of the cows receiving a full ration of hay, grain, silage and pasture was approximately 40 per cent. higher than that

of the cows fed only on alfalfa. On the other hand, the cows fed exclusively on alfalfa hay showed slightly less difficulty in conception than those receiving a full ration.

Similar experiments conducted at the California Agricultural Experiment Station gave results more favorable to the feeding of alfalfa hay. In these experiments 1.7 pounds of alfalfa hay produced 1 pound of milk in the first lactation, while 1.6 pounds of alfalfa hay were consumed per pound of milk in the second lactation.

In another experiment conducted at the California Agricultural Experiment Station the animals fed with alfalfa hay only produced 88.4 per cent. as much milk and 80.0 per cent. as much butterfat as those receiving a mixed ration with full grain supply.

At the Nevada Experiment Station 1 pound of milk has been obtained for each 1.6 pound alfalfa hay consumed. The cows fed on alfalfa hay alone produced in this experiment 83 per cent. as much milk and a little less than 85 per cent. as much butterfat as the cows receiving also a grain ration.

More recently, longer and very complete experiments have been conducted under the auspices of the Bureau of Dairy Industry of the U. S. Department of Agriculture at several of its Experiment Stations and in different parts of the country. These experiments showed that the cows produced on an average 57 per cent. as much milk and 60 per cent. as much fat as they did under full-feed conditions. There is evidence, however, to indicate that the yields of cows accustomed, over long periods, to a ration consisting entirely of high quality roughage may exceed these percentages. There was a more rapid decline in daily milk yield throughout the lactation period when the cows were fed on alfalfa hay alone than when they were under full-feed conditions.

There was a certain decline in body weight of the cows receiving alfalfa hay only, but in spite of the loss of weight, they had a well-fed appearance. The long-continued feeding of the alfalfa hay ration had no detrimental effect on the fertility, breeding or calving conditions of the cows.

Some of these experiments showed that feeding on alfalfa only may result in undesirable qualities in the milk. The butterfat may give a typical sticky appearance to the butter, a defect which can however be corrected by adding silage to the ration. Feeding green alfalfa within 5 hours before milking produced a marked flavour in the milk, while this flavour was much less accentuated when hay was fed to the cows.

From cost figures and acre yields GRAVES and SHEPHERD calculated the cost of growing the feeds consumed by cows in the feeding experiments conducted at the various stations of the U. S. Department of Agriculture. The following items were compared:

- (1) roughage alone.
- (2) roughage *ad libitum* and 1 pound of grain to each 3 pounds of milk produced (full-grain ration).
- (3) roughage *ad libitum* and 1 pound of grain to each 6 pounds of milk produced (limited grain ration).

The investigators concluded from these calculations that *many farmers would find it advantageous to change their system of farming* for one in which they would keep most of their land in permanent pastures and legumes, and grow very little grain. Pasture and roughage would supply the basic ration and grain would be fed *only when the resulting increase in milk or butterfat production could be obtained at a profit*. When the prices for milk or butterfat are low in relation to grain prices the dairy farmer should feed roughage more liberally. Production will be lower when less grain is included in the ration, but the cost of the ration will be lower also – enough to make production more profitable.

The considerable differences in the results obtained in the experiments on the value of alfalfa hay as an exclusive ration for dairy cows may be attributed to the great differences in the nutritive value of hay fed. It is necessary to obtain a better quality of hay by mowing the alfalfa at the right stage of growth and by proper methods of handling the hay.

Making hay and silage from immature pasture grass.

The usual method in the United States is to use certain surfaces of grassland exclusively for pasture. The surplus of grass on pasture land is rarely mowed and made into hay or silage. Hence the grass often grows more rapidly than it can be grazed, and matures, becomes unpalatable and loses the high nutritive value that it had in its earlier stages of growth.

Earlier experiments conducted by the Bureau of Dairy Industry of the U. S. Department of Agriculture showed that both hay and silage made from immature grass were *far superior* for milk-production to hay and silage made from mature grass.

Recently the Bureau of Dairy Industry conducted experiments at the Huntley field station in Montana in order to ascertain:

(a) The comparative value for milk production of hay and silage made from immature grass and fed as the sole ration for entire lactation periods.

(b) The production of cows fed exclusively on immature grass hay or immature grass silage compared to their production on a ration of grain, alfalfa hay, corn silage and pasture.

(c) The effect on the health and general condition of the animals of feeding the grass hay or the grass silage as a sole ration and for long periods.

The production of the cows on grass hay was 64.6 per cent. as much milk and 63.4 per cent. as much butterfat as their production on the full-feed ration. The cows on the grass-silage ration produced 61.2 per cent. as much milk and 61.5 per cent. as much butterfat as they produced on the full feed.

A certain decline of production could be observed during the experiments as a result of substituting alfalfa hay for grass hay and grass silage for short periods, when these feeds were not available. There was an increase again when grass hay or grass silage was again fed. These facts support the conclusion that the dry matter in the immature grass hay or silage is superior to the dry matter

in alfalfa hay that was cut at a stage of maturity in which one-half or more of the plants were in bloom.

As to health there was no difference between the cows on different rations.

These experiments show the necessity of better management of pastures, which have very often been mismanaged or neglected in the United States; *of cutting at an earlier stage of growth those pastures which cannot be grazed in time before becoming mature*; and of feeding the hay or the silage obtained from the pastures, which is a very valuable feed to the dairy cows.

Improving the quality of silage from grasses and legumes by better methods.

For a long time no special attention was given to the making of silage from grasses and legumes, probably because there appeared little advantage in making ensilage of these crops when they could be made into good hay. It was, however, discovered that it was impossible to overcome the effects of unfavourable weather at harvesting time on the nutritive qualities of hay, and that in such cases ensilage was the best method for saving forage crops. Moreover, properly made silage has been found superior to the best hay in content of carotene and this has stimulated the interest in making it out of grasses and legumes.

To-day the improvement of the methods of making silage from grasses and legumes is one of the measures most essential to decrease the production cost of milk by making more and better use of roughages. Hence these methods have been the object of research work carried on in different American experiment stations.

The experiments were particularly concerned with the advantages of chopping the grasses or legumes before putting them into the silos, the different degrees of humidity of the material when put in the silo, and the advantages of adding acids or molasses to the silage. The results obtained are somewhat contradictory, but the most and recent careful of these experiments conducted by the Bureau of Dairy Industry of the U. S. Department of Agriculture at the Dairy Experimental Farm of the National Agricultural Research Center at Beltsville, Maryland gave the following results.

Chopping the material (cutting) resulted in various advantages. Much more material could be stored in a unit space in the silo than if the material were not chopped. Losses in dry matter were reduced, the palatability and general appearance of the silage improved. Further, it appeared to be the easiest way to put the material in the silo.

Fresh green grass, either alone or mixed with legumes, or fresh green alfalfa alone, made a silage that was highly palatable and, in general, possessed an agreeable odour when simply chopped before putting it into the silo, with no other treatment. The alfalfa silage, however, developed offensive odours when the dry matter of the crop was less than 30 per cent. Losses of dry matter, protein and carotene were very low and there was no moulding or rotting.

Partial drying, before chopping, further facilitated handling, increased the quantity of dry matter that could be put into a given space, increased the

temperature of fermentation and in most cases improved the palatability and therefore the quantity of dry matter consumed by the cows.

The *addition of acids*, as recommended by the A. I. V. (Virtanen) method, lowered the palatability of the resulting silages. It appeared, however, to favour the preservation of carotene and nitrogen. It had little effect on the losses of dry matter.

The *addition of molasses* slightly increased the losses of dry matter, protein and carotene, but somewhat improved the palatability. On the whole, this addition did not prove very advantageous, but in these experiments the molasses was not added to any grasses having a high content of moisture. In previous experiments the addition of molasses helped to preserve the nutrient matter in the silage, when the moisture content was a little too low or a little too high.

Alfalfa silage appeared to be fully equal to alfalfa hay for the production of milk, but inferior for the maintenance of the body-weight.

Continuous Grazing.

Pasturing is the cheapest method of feeding dairy cows in a country where the price of the soil is relatively low and the cost of labour relatively high-as in the United States.

Statistics compiled by Cornell University and other agricultural colleges seem to show that the best profit to be expected from a dairy herd is made during the grazing period.

It has, therefore, been the tendency in many parts of the United States to extend the grazing period as long as possible. This has been the case particularly in the South, which is relatively backward in dairy husbandry, but which is now beginning to realize advantages of a long grazing period for dairy cows. It is true that pastures are less nutritious in the South than in the North, where the grazing period is short, but this can be corrected by finding suitable grasses and legumes for the southern climate and soil.

Extensive experiments on these lines have been carried out at Invershiel Farm in North Carolina, and the results are promising. The objective has been to provide an abundance of succulent green feed for the cows during the entire year and to make the most intensive use of the land in winter as well as in summer.

It was found that these aims could be more successfully attained by the use of *annual* crops. There are also many desirable perennials, but they can be profitably used in a continuous grazing programme to a limited extent only as their maximum periods of growth range from three to six months at the outside which means that the land must be left idle for the remainder of the year.

The annual crops which, under the conditions of North Carolina, have proved most advantageous have been: for summer grazing (Biloxi Soy Beans (grazing period: June-October), Sudan Grass (June-October), Desmodium (June-October), Johnson Grass (May-October), Lespedeza Sericea, Korean and Kobe (July-October); for winter grazing: Cold resistant oats (October-December), Abruzzi Rye (Novem-

ber-February), Beardless Barley (December-March), Bur Clover (3 varieties, December-May), Vetch with Austrian Peas (January-June), Black Medica.

By suitable rotation of these fodder crops the Invershiel Farm succeeded in extending the grazing period to a full year besides saving a great deal of labour and taking advantage of the soil-improving qualities of the leguminous crops.

At present the Invershiel Farm is demonstrating that, with the above crops (and making use of fertilizers also), it is possible to keep on an average one cow per acre with the continuous grazing method, and to reduce considerably the cost of milk production.

Thanks to all this experimental work, the dairy industry in the United States is succeeding in reducing its production costs by making increasingly efficient use of roughages, by better grazing methods, and by limiting the hitherto excessive use of concentrates and grains for dairy cattle.

S. TAUSSIG

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PRESENT POSITION OF THE DAIRYING INDUSTRY IN THE DIFFERENT COUNTRIES: (19) ALBANIA ⁽¹⁾

Natural and Economic Conditions of Agriculture in Albania.

Situated along the western coast of the Balkan peninsula, Albania with an area of 27,540 km² (11,000 sq. miles) includes: the Ghegheria or Upper Albania, or territory of the Gheghis, and Toscheria or Lower Albania, or territory of the Toschis or the Lliapis. The country is very varied in aspect with mountain ranges, belonging to the Dinaric system, alternating with plains. There are in consequence marked contrasts of climate and vegetation; the climate ranges from the subtropical to that of the mountains of Central Europe, as one passes from the coast plain to the mountain region, which includes the Alps of Northern Albania, the central mountains and the mountainous districts of the southeastern littoral.

There are wide variations of temperature from one region to another, but no data are available for calculating the average for the whole country. The average in Tirana is 15° 5.

Albania is one of the most rainy countries in Europe, the areas of heaviest rainfall being in the west, although with some exceptions. The driest areas are in the east and southeast. Nearly all the cultivated plants suffer from drought, as the seasonal distribution of the rains is very irregular; the maximum occurs from October to January, while in the growing period, there is practically no rain.

The extent of productive lands in Albania is in all 2,873,020 ha., with the following distribution:

Pasturelands	1,027,414 ha. or 35.70 %
Forests	986,310 „ „ 34.30 %
Crops	235,875 „ „ 8.20 %
Meadows	55,575 „ „ 1.93 %
Market gardens and orchards	10,000 „ „ 0.35 %
Lakes and watercourses	44,530 „ „ 1.55 %
Marshes and swamps	47,080 „ „ 1.64 %
Other lands	466,537 „ „ 16.24 %

(1) Previous articles of this series: 1. France (November 1934) - 2. Italy (April 1935) - 3. Hungary (June 1935) - 4. Czechoslovakia (July 1935) - 5. Austria (August 1935) - 6. Switzerland (March 1936) - 7. Denmark (May 1936) - 8. Belgium (November 1936) - 9. Poland (February 1937) - 10. Bulgaria (March 1937) - 11. Latvia (April 1937) - 12. Lithuania and 13 - Estonia (June 1937) - 14. Finland (November 1937) - 15. Norway (February 1938) - 16. Iceland (June 1938) - 17. Sweden (July 1938) - 18. Romania (August 1938).

It is a characteristic feature of Albania that the pasturelands occupy so large a proportion of the productive area. According to ZAVALANI *, these lands are distributed in the different regions as follows:

10 % and less	Leshi, Mirdita.
11-25 %	Dukagjini, Puka, Kopliku, Tirana, Kruja, Pogradeci, Himara.
26-50 %	Shkodra, Jakova, Kukesi, Luma, Mati, Zerquani, Elbassani, Bilishti, Korça, Leskovidu, Permeti, Skrapari, Berati, Blora, Fieri, Lushnjan, Durresi, Shijaku, Gramshi.
over 50 %	Mallakastira, Dibra, Kavaja, Peqini, Gjinokastira, Libhova, Delvina, Konispoli, Kurveleshi, Tepelena, Kolonja.

On the other hand, sown grassland represents 2 per cent. only of the total productive area. This small percentage is due to unfavourable moisture conditions.

The main crops are: maize (nearly 50 per cent. of cultivable lands); next wheat (about 30 per cent.), oats, rye and barley (about 10 per cent.).

Production in Albania is mainly agricultural. The few very primitive industrial enterprises found in the country, such as cheese factories, distilleries making alcohol from fruit or wine, oil mills, flour mills, cigarette factories, maize alcohol factories, etc., are for the most part agricultural industries.

The greater proportion of the exported products are of agricultural origin. Cheeses, live animals, hides and skins, olives, citrus fruits, represent about 80 per cent. of these exports. Of these, two-thirds are livestock products. In recent years there has been a considerable decline in exports, owing chiefly to the lack of organisation of sales in general, and also to the fact that certain customers who formerly made large purchases in Albania have limited their orders.

The insufficient means of communication and the prevalence of malaria are serious obstacles to agricultural progress.

Population.

At the last census (1937) the number of inhabitants was 1,021,339, giving a density of about 37 inhabitants to the square kilometre. Distribution of population is not uniform throughout the country; in some regions the density is only 10, in others more than 100. For more than half the country, the density is about 23, a figure much below the average for the whole country. These wide divergences are to be attributed to the agricultural conditions of the different regions.

Contrary to the general opinion, Albania is not an important agricultural country, as only 25 per cent. of the population are engaged in agriculture.

* ZAVALANI, Dalib (see this *Bulletin*, p. 157).

About 40 per cent. of the agricultural population are share tenants; the remaining proportion consists for the most part of small independent farmers, and of a small number of shepherds and farm workers. As the distribution of ownership of land is far from satisfactory, the native agriculture does not meet the requirements of the population. Moreover, there are no large industries in Albania capable of absorbing surplus labour. As a natural consequence of this state of things there is a stream of emigration, some workers going into other countries to work for a part of the year, others emigrating for a number of years.

Distribution of Ownership in Land and Size of Farms.

The different classes of landowners in Albania are as follows:

- (1) The State (forests, pasturelands, waters and cultivated lands, constituting large desmesnes);
- (2) The communes (forests, pasturelands, irrigation waters);
- (3) The Church (cultivated lands, "vahuf" desmesnes);
- (4) Large landowners (cultivated lands, pasturelands and irrigation waters on latifundia);
- (5) Owners of medium-sized farms (independent family farms, belonging to the rural aristocracy, "agas");
- (6) Small land owners (small independent family farms);
- (7) Owners of small parcels of land (grasslands, vineyards, small cultivated plots, oliveyards); these are moneylenders.

Family farming is a characteristic feature of Albanian agriculture. The lands are in the hands of independent family farmers or are farmed by share tenants. State desmesnes, Church lands, lands belonging to larger or smaller owners and to the moneylenders are all split up into small farms worked by the families of share tenants.

Farms vary considerably in size; the average extent of an independent family farm varies from two and a half hectares to 7 hectares. On the other hand, a family farm on which several related families live, known as a "plluk", may be as much as from 33.2 to 38.5 hectares in extent.

I. — Dairy Cattle Types and Breeds.

According to the latest census, taken in 1936, livestock in Albania comprised:

Horses	67,791	head	
Asses	68,529	"	
Mules	9,584	"	
Cattle	407,205	"	(including 183,256 oxen
Buffaloes	16,453	"	and 140,542 cows)
Sheep	1,675,368	"	
Goats	975,017	"	
Pigs	24,354	"	

The distribution of the kinds of livestock is shown in the following table:

TABLE I. — *Distribution of livestock according to inhabitants and area.*

Animals	Number per 1000 inhabitants	Number per km ²
Horses	66.37	2.46
Asses	66.97	2.48
Mules	9.5	0.31
Cattle	398.68	14.79
including cows	137.72	5.10
Buffaloes	16.19	0.59
Sheep	1,644.63	60.84
Goats	954.65	31.73
Pigs	23.59	0.88

Two kinds of stock farming are practised in Albania: that carried on in a single locality, or stationary stock farming, and the nomadic type: the latter, representing about one third of the whole, accounts for some 30 per cent. of the cattle and from 35 to 38 per cent. of the goats and sheep. Nomadic stock farming is a necessary consequence of the level of agriculture, as it is in this way possible to make use of extensive and somewhat poor grazing land, without means of communication. From the economic and social standpoint it is a disadvantage, as large flocks and herds are thus in the hands of a small number of persons. Encouragement of the settled kind is desirable, as thereby a larger number of people could earn a living.

One of the consequences of nomadic stock farming is that a large proportion of the products (such as cheese, hides and skins and butter), not consumed by the breeder himself and his family, is loaded on to the animals themselves and carried to the selling centres, mainly on the coast.

In the mountain regions, stationary stock farming has to rely on poor feeding and is exposed to seasonal fluctuations: grazing in summer, a little maize straw, dry leaves and poor hay in winter. On the plainland feeding is richer and more regular, but energy-producing foods are not given. In the inland valleys feeding is better, as it is supplemented by various by-products (cereal offals, etc.). In spite of all efforts, there are frequent losses of stock due to shortage of feed.

1. — Bovidae.

(a) BUFFALOES.

Buffaloes are very numerous in the marshy regions, and are used as draught animals.

(b) CATTLE.

In Albania, cattle breeding is impracticable on any large scale. A characteristic feature is that out of some 407,000 cattle, there are only 140,000 cows as compared with 183,000 oxen. Frequently also, the cow is not utilised for milk production, but only for reproduction and calf-feeding. The oxen are used primarily as work animals and are much in demand for this purpose.

The most common cattle breeds in Albania all come from the Illyrian cattle: the animals are very resistant to bad weather, to climate and to diseases, very docile, but give poor yields. Generally speaking, they weigh only 150 kg. and are of small build (90 cm. to the withers). The coat varies from redbrown to red-yellow, with longitudinal stripes of a yellowish white: on the inner side of the foot and thigh the colour is pale; the tuft of hair on the forehead and in the ears is also pale in colour; the horns and hoofs are black, the hide thin. These animals are valued for draught purposes. The milk yield varies considerably; 200 litres may be obtained per year, or with better feeding, from 400 to 600 litres, sometimes even more, but the average varies between 200 and 400 litres.

Good returns are obtained from cattle as draught animals. For example, 20 kg. of maize are paid, in the mountains, for the hire of a team per day. In the plains, from 3.3 to 4.5 quintals of maize are paid per team and per year.

2. — Sheep.

Sheep are the main wealth of the country. The most widespread breeds belong to the *Zackel* type. The animals are bred for milk, wool and meat, sometimes for one of these purposes rather than the others.

With the *Ruda* type, a somewhat higher yield in meat and in milk is obtained (Luma district), while the *red-headed hornless* sheep mainly yields milk (Elbassan district). Without exception, the sheep are of small build and insignificant looking; their live weight is from 15 to 20 kg. while 25, 30 or more are attained only by the *Ruda*. This breed also yields more wool, but its milk yield is lower. Apart from the milk taken by the lambs, the annual production of a ewe is about 30 to 45 kg. Analysis shows very different results for the winter milk and summer milk, and consequently for the composition of the cheeses. Thus, in summer 100 kg. of sheep's milk yield 22 kg. of cheese, but in winter only 15.

In general, 20 per cent. of the lambs die of disease and 30 per cent. are required for reconstitution of flocks; 50 per cent. are sold. Milk is fed to lambs for a longer or a shorter time in accordance with the market prices of milk; for six or eight weeks if prices are low, and some days only if prices are high.

Produce sharing in sheep farming usually consists in the practice of hiring a flock for a certain time; the products (wool, cheese, butter, etc.) are shared, and at the end of the lease, the hirer must return to the owner the number of head of sheep which he had hired. Risk of losses is usually borne by the hirer.

Lambs born during the period are shared equally, while for other products a different arrangement is made: for example, for butter the hirer owes 1 oka to the owner and the same for wool.

3. — Goats.

The number of goats is about 1,000,000. Goat farming represents a fairly important branch of animal production in Albania. In the case of nomad farming where goats are found side by side with sheep, the goats are used for supplying milk and cheese to the shepherds' families, while the sheep's milk is sold for consumption or is made into cheese.

II. — Milk.

The quantity of available in Albania may be estimated at 13,500,000 litres, including cows' milk, buffaloes' milk, and sheep's and goats' milk. Sheep's milk is the most in demand.

No system of milk testing exists, the trade in milk for consumption being still in a primitive state.

In the towns milk is delivered at the house of the consumer, directly by the small milk producers, who own a few sheep, goats or cows. The milk is brought in receptacles more or less suitable for the purpose and sold by measure.

Lately (1934) BINDONI undertook an enquiry on the hygienic testing of milk for consumption delivered in Tirana. The analyses carried out show that the average fat content is 3.5 per cent. for cows' milk, 4.5 per cent. for goats' milk, and 5.5 per cent. and up to 10 per cent. for sheep's milk. The average acidity of normal fresh milk is rather high. In sheep's milk lactic fermentation is set up more slowly than in cows' milk; this is of interest, as sheep's milk which keeps longer can be transported greater distances. It is for this reason that sheep's milk is more in demand than cows' milk, apart from questions of taste. Samples examined by BINDONI have shown that the milk, especially cows' milk, is often largely skimmed; sheep's milk on the other hand is more frequently watered. The analyses have also shown that the milk contains a considerable proportion of impurities in suspension. The quantity naturally varies considerably according to the surroundings from which the milk comes, but hygienic conditions are very unsatisfactory.

Large quantities of yoghourt, a valuable health food, are consumed in Albania.

III. — Butter Production.

The butter production is estimated at 1,400,000 kg.; it includes butter made from cows', sheep's and goats' milk. According to ZALAVANI's figures, to obtain an oka (1.28 kg.) of butter, 10 kg. of sheep's milk, 15 kg. of cows' milk, and 20 kg. of goats' milk are required.

Most of the butter is made from sheep's milk, as this butter is preferred by Albanians and keeps better. A butter-making industry in the modern sense does not exist in Albania; the process remains quite primitive.

IV. — Cheese Production.

Cheese production includes cheese made from the milk of sheep and goats, as well as from that of cows, that made from sheep's milk being the most important. The following types are found: *cachcaval*, *manuri* or *kephalotiri  rnauti* or Albanian *fetta* cheese, and various others.

Albanian cheese is prepared, according to FILIPOVIC, by adding to the milk the rennet required to obtain curdling in 2 hours. The curd is sliced in two directions, forming squares of about 5 or 6 cm.; it is then left till the whey has turned greenish. Then the curd is filled in linen bags with a large spoon and left to drip for about six hours. The mass is then taken out and sliced into pieces of 200 g., which are placed in wooden trays and salted. The whey soon oozes out, and as a rule, to avoid contact with the air, a little whey is added, which makes the cheese keep better. This cheese has a pleasant taste. The wooden tubs used for transporting the cheese are wider at the base and can hold 10, 20 and even 50 kg.

Cheese production, which also remains very primitive, may be estimated at 3,500,000 kg., about one fourth of which is exported, almost exclusively to the United States of America, where it is absorbed by Albanian emigrants. These cheeses can hardly command sales outside Albanian circles.

V. — Other Derivatives.

Owing to the primitive state of the dairying industry in Albania, there are no factories in the country for the utilisation of by-products.

E. GASSER.

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MISCELLANEOUS INFORMATION

Hydroponics. — Hydroponics — a term analogous to the Greek term “geoponics”, which was used in the Middle Ages to denote what we understand to-day by the Latin word agriculture — is, comparatively, a very recent creation. Hydroponics may also be referred to as “Aquaculture”, “Aquiculture”, “Water Culture”, “Crop Production without Soil”, and even “Dirtless Farming” etc. Laboratory cultures of plants in liquid culture media have been known to physiologists since KNOP's time, but the possibility of the economic production of certain agricultural and horticultural crops by this method based — as it is stated — on an analytical study of the physiology and ecology of practical farm operations, has been demonstrated perhaps for the first time by Prof. GERICKE of California. Plants are grown in suitable reservoirs, basin or tanks (made of concrete, wood, sheet metal etc.) filled with ordinary water, to which are added crude chemicals containing the major, minor and trace elements required for plant growth in water. A reservoir or flat tank may provide a total water surface of 1/200 acre, and two or more reservoirs can be joined end to end. The seed-bed consists of a mat of vegetable litter — excelsior, sawdust, peat moss, etc. — spread over a portable wire netting fixable on the top of the reservoir. A system of supports is provided for the growing crop.

Reservoirs of different sizes were tried and it was noticed that the factor, size of reservoir, had a physiological significance. It was found that the yield of certain plants, e. g., tomatoes, potatoes, tobacco, bananas, was always markedly greater per unit area of the surface of the liquid medium than of soil. It is maintained that a unit volume of liquid media which contains no solids provides more water and nutrients than one in which space is occupied by solids as in the case of the soil. By hydroponics, therefore, it is claimed, it may be easier to approach the agrobiological limit of the production capacity of improved plant types than by agriculture. A field of 1/100 acre area planted to potatoes produced a yield of 24.65 bushels (1,479 lb.) in 1934. Forty pounds of chemicals were used, the retail market price of the chemical most used (potassium nitrate) being 70 dollars a ton in the U.S.A. There seems to exist experimental evidence according to which *two* crops of potatoes can be grown so as to be harvested together with

still greater yields. The second planting is intercalated when the first has passed the period of full light requirement. It is stated that two or even three crops grown together in this way do not constitute the full productive potentiality of hydroponics in regions having long seasons of favourable climate. The greatest item of cost in crop production by hydroponics is the investment in reservoirs. The high yields, however, may warrant this investment. It is rather early to predict the future economic and sociological consequences of hydroponics, but some of the advantages and potentialities of this new method of crop production may be summarised: — (1) Higher yield per unit area owing to closer plantings or denser stands; (2) More economic use of water; (3) Possible economy of labour especially as regards farm operations such as hoeing, harrowing etc.; (4) Portability of plants — which is desirable in flowers; (5) More economic use of elements by growth in water, through manipulation of factors that restrict absorption to definite growth periods; and (6) Obtaining desired compositions of plants by growth in water, through manipulations of factors that affect absorption of certain elements.

A special programme of research is under way with a view to working out the technique of growing various crops by hydroponics.

G. T. K.

TERMS OF CONSTITUTION OF THE INTERNATIONAL COMMISSION OF AGRICULTURAL INDUSTRIES. — The economic difficulties in which all nations have been involved since the end of the war have made clearly evident both the close interdependence existing between nations and the part of agriculture and of the agricultural industries as essentially regulating factors alike in the special economy of a country and in world economy.

This conception, which formerly was much criticised or at least misunderstood, is nowadays no more than a platitude which international conferences have attempted to modify but up to the present without result.

For this reason it appeared desirable in 1933 to take steps for the formation of an international organisation capable of supplying a valuable element of documentation, information and, in particular, co-ordination in respect of the technique and world economy of the agricultural industries. By co-ordination, there should be understood not only the co-ordination of the theoretical knowledge and of the practical applications in the industrial cycle properly so-called, but above all, the co-ordination of agricultural production with the requirements that spring from the industrial processing of the products.

It was with this object that the delegates of 49 Governments, meeting in Paris on the initiative of the French Government, resolved on March 30, 1934 on the establishment of the International Commission of Agricultural Industries, the Secretariat General being placed in the hands of France.

Since its establishment this Commission has given proof of an especially valuable plant of action which augurs well for its future activity. The different adhering Governments have therefore been requested to give their approval without delay to the terms of constitution of the International Commission of Agricultural Industries, since

by this means alone will it be possible for the Commission to attain its full development and to give its collaboration to the work of restoration of the economic and financial situation, on the international plane.

Terms of Constitution of the International Commission
of Agricultural Industries.

(Adopted at Paris on March 30, 1934, amended on June 11, 1936).

ART. 1. — An international commission, known as "International Commission of Agricultural Industries" is established for the purpose of organising Congresses. This Commission may also propose or organise international exhibitions of agricultural industries.

ART. 2. — The Commission will consist of delegates appointed officially by their Governments, the delegation of any one nation not to exceed a maximum of six members, these delegates remaining in office until withdrawn by their respective Governments.

ART. 3. — Each member State has a single vote only, whatever may be the number of its representatives. The vote is given by the president of the delegation.

ART. 4. — The international commission elects a central bureau consisting of a president, eight vice-presidents, a general reporter and a general secretary.

ART. 5. — Former presidents of the congresses and of their executive committees and general secretaries, are entitled to membership of the commission and of the central bureau.

ART. 6. — The central bureau is the executive body of the international Commission and represents it during the periods between congresses.

ART. 7. — The central bureau meets when convened by the general secretary, on the dates and in the places fixed by the president. Resolutions are passed by a majority of the members present.

ART. 8. — The president, the vice-presidents and the general reporter are elected for each congress by the international commission and are eligible for re-election.

ART. 9. — The general secretary is appointed by the commission for the period including two successive congresses, and his mandate may be renewed. He ensures the working of the commission under the control of the president and by delegation from the bureau. He is assisted by an administrative staff appointed by the central bureau.

ART. 10. — The central bureau, in the event of decease or resignation of the president, of the general reporter or of the general secretary, makes provision for their temporary replacement in the interval between two meetings of the commission.

ART. 11. — The headquarters of the Commission and of the central bureau is fixed at Paris, at the Ministry of Agriculture. The administrative headquarters may be fixed at any other place in Paris, on the resolution of the central bureau.

ART. 12. — The international Commission meets either at Paris or at some other place in France or in another country, when convened by the president through the general secretary, in accordance with the resolution of the bureau. If required, sub-commissions may be formed consisting even of co-opted members. The Commission determines the duties and powers of these commissions.

ART. 13. — The Commission fixes its annual budget, but the budgetary year must coincide with the legal year.

The receipts will be ensured:—

- (1) by compulsory payments made by the organising committees of the congresses in accordance with article 17 hereafter;
- (2) by allocations made by the national commissions of agricultural industries;
- (3) by grants, gifts or bequests from the Governments, industries, or private individuals concerned.

An annual report on the financial management is presented to the commission, for the purposes of closing the books. A report is presented by the general secretary to a trustee in accounts appointed by the commission for the purpose.

ART. 14. — The international commission establishes the programme of the forthcoming congress together with its regulations; it draws up the list of questions which must be treated in order of priority and nominates qualified reporters to deal with them.

ART. 15. — The following are members of the congress:—

- (1) The official delegates of the different nations represented at the congress;
- (2) The representatives of the organisations of the different nations duly constituted;
- (3) Persons who have signified adhesion, conforming to the regulations of the congress.

ART. 16. — The congress fixes at a plenary meeting the places and dates of the next congress, in accordance with the proposals of the international commission.

ART. 17. — The nation in which the forthcoming congress is to be held forms a national organisation committee entrusted with the general arrangements for the congress and the drafting of suitable regulations, in consultation with the bureau of the international commission.

There shall be paid to the international commission, through and with the liability of the national committees of organisation, as contribution to the administration expenses of the international commission:—

- (1) in the year which precedes the congress a sum of 10,000 francs at the parity of 65.5 milligrams of gold of 9/10 fine (definition of the stabilised franc by the monetary law of June 25, 1928);
- (2) As payments come in, a sum equal to 10 per cent of the total of all the contributions collected by the committee of organisation of the congresses, with the exception of the contributions of donor and benefactor members for that part of their payment which exceeds the minimum contribution fixed by the regulation for the members of their category.

The national organisation committee shall, in addition, ensure the delivery to the general secretariat of the international commission of two hundred copies of all the technical publications of the congress.

Finally, from the date of the publication of the last volume of the reports of the proceedings, the committee shall forward to the general secretariat of the international commission all relevant archives or, in any case, a copy thereof.

ART. 18. — The resolutions and recommendations of the congress are considered before being put to the vote in plenary session by the international commission, which has full power to accept, amend or reject such resolutions and recommendations.

ART. 19. — The central bureau ensures the carrying into effect of the resolutions taken by the congress and, through the medium of the French Department of Foreign Affairs, notifies the governments or organisations concerned of the recommendations made.

ART. 20. — An administrative regulation, prepared by the central bureau and approved by the commission, will determine, when occasion requires, points of detail relating to the execution of the present terms of constitution.

ART. 21. — No alteration can be made in the present terms of constitution except by the international commission and on the request of delegates representing at least five States taking part in the commission, three months notice being required.

ART. 22. — For the purposes of Art. 2, the delegates of the different governments at the third international and technical congress of agricultural industries are considered as members of the commission.

G. R.

AN INTERNATIONAL BIBLIOGRAPHY OF FORESTRY SCIENCES. — The problem of the formation of an international bibliography of forestry sciences has been for a long time under consideration and in particular by the International Union of Institutes of Forestry Research. This body, after much preliminary work, published some years ago, a "Repertoire de Bibliographie Forestière", or a system of classification, which has appeared successively in German, French and English.

This classification, the work of Dr. PH. FLURY of Zurich, is also the basis of the new international bibliographical collection, established for the first time for the publications of 1937 by M. FRANZ GRUNWOLDT of the Section of world forestry economy of the Institute for Foreign and Colonial Sylviculture of the Higher School of Sylviculture of Tharandt (Saxony).

Professor FRANZ HESKE, who took the initiative in the preparation of this new bibliography, explains in his preface to the first volume the necessity, for purposes of forestry research, of an exact knowledge of all the works published in the different countries. It is thus of great advantage that a bibliographical centre should be formed, with the function of collecting all publications of a forestry character and submitting them to the fullest possible examination.

The bibliography for 1937 includes in all more than 6,000 book titles, and it may be said that the desired object, *viz.*, that of including all the forestry bibliography

without omissions, has already been attained by the first series of this publication. As the aim was to include all the publications without exception, it was impracticable to make summaries or reports in addition to the titles. The editor has confined himself to giving the titles of the various works with the necessary bibliographical indications.

The order of subjects follows, in its main lines, the system established by M. FLURY. There is, however, no attempt at a detailed subdivision by subject, and instead a geographical subdivision is adopted; the publications of general character are placed in each group under the heading "International". The absence of a detailed subdivision by subject is balanced, to some extent, by an alphabetical table of contents which is found at the end of each part. So far there have appeared the annual collection for 1937 and that for the first six months of 1938; after the appearance of the volume for the second half of 1938 the bibliography will be published every quarter, as a regular supplement to the review "Forstliche Rundschau" (Verlag J. Neumann - Neudamm u. Berlin).

S. v. F.

BOOK NOTICES *

DEL BO, Professor Carlo, *Corso di agraria*. Biazzi, Milano. 1938, 357 pp. figs.

[The subject of this book is agriculture and agricultural economics. The course in agriculture takes up 278 pages and is divided into two parts. The first includes the following chapters: plants (elements of anatomy and vegetal physiology; climate and climatic factors; soil; preparation of soils (removal of stagnant water, distribution of soil in plain and mountain regions, etc.); cultivation (methods of work); soil fertilisation (dressings, chemical fertilisers, organic fertilisers) irrigation; crop rotation and association; propagation of plants: field work.

The second part deals with the various farm crops—cereals and leguminous plants, oil-yielding plants, root crops, fodder plants, tree and bush crops.

The course in agricultural economics extends to 79 pages, one part dealing with farm accounts and another with the fixed capital of the farm.

The work is readable and illustrated with several drawings].

D. K.

BIGNAMI P. *Il grande canale Muzza, la rete delle rogge derivate e il territorio irrigato*. Ulrico Hoepli, Milano, 1939. 453 pp., 45 illus. 2 maps.

[Although more than half the irrigable land of Italy benefits from this improvement, great possibilities of irrigation remain, especially in combination with fertilisation. It is hoped to secure along these lines an ever increasing degree of self-sufficiency in food production.

* Under this heading are included short synopses of books received for review.

Surface irrigation is effected almost exclusively by open canals. Installations for artificial rain are still too costly and suitable only in special conditions.

Irrigation is practised most extensively in the Po plain and, in particular in Lombardy. In this region it has been the backbone of a highly developed agriculture for hundreds of years. One example of the irrigation works is provided by the Muzza canal, southeast of Milan, with which the author of this book deals in detail. This canal and its irrigation system was constructed by the city of Lodi and the landowners concerned. It receives its water from the Adda, a tributary of the Po. It is 38.7 km. long but its ramifications reach a total length of 1,283.4 km. The area irrigated includes lands, formerly very poor and permeable, which in the course of centuries have been improved as a result of intensive stock-raising and of the consequent plentiful natural fertilization. Without irrigation, however, the land would soon fall back to its primitive, almost infertile state.

In the nine separate parts of his book the author describes: (1) Land and climate; (2) Source, temperature and chemical composition of the irrigation water; (3) The Muzza canal with construction details; its outflow and control; (4) The ramifications of the Muzza canal; (5) The region irrigated; (6) The organisation of water distribution; (7) Land ownership and economic conditions in the irrigated region. In the eighth part the author gives an account of the origin and historical development of the Muzza canal and the legal position. The ninth part deals with outstanding questions to be solved in the future.]

H. J. H.

ZAVALANI Dalib, Dr. agr., *Die landwirtschaftlichen Verhältnisse Albaniens*. Berichte über Landwirtschaft, 140 Sonderheft, Berlin 1938. Verlagsbuchhandlung Paul Parey. 151 pp. 6 maps, graphs.

[This work gives a competent account of agricultural conditions in Albania based on researches conducted by the author during many years in the country. It is all the more valuable because it is the only work that deals so completely with Albanian agriculture.

The first of its two parts describes the natural and economic conditions of Albanian agriculture. The conformation of the country, the climate and soil, the history and political organisation, the population, land ownership and the size of farms, mode of tenure and leasing of livestock, the means of communication, marketing and sales, credit and agricultural wealth are all dealt with.

In the second part, the author studies the different forms of farming. (1) Forms of agriculture, the crops cultivated, silviculture and the area under forest in various regions, the area of pasture in the different regions, meadows, the extent of cultivated land in the various regions, gardening, special crops, horticulture, marsh, lakes and wet lands, uncultivated and arid lands. (2) Crops and, rotation and methods of working arable land; a description of the forms of agricultural exploitation. (3) Animal husbandry, exploitation of animals and pasture; this chapter indicates the importance of stock raising in Albania, the methods of feeding, the distribution by zones of livestock numbers, sheep, goat, cattle, pig and poultry raising, apiculture and sericulture; the upkeep of animals for work, oxen, horses, asses, mules and finally, pisciculture are also

dealt with. (4) The forms of grazing, settled farming without transhumance, shifting stock raising and large scale nomadic stock raising; under these heads, the author deals in particular with Kelmeni, Vurgu, Luma and Berzeshta.

The 6 maps constructed by the author form a very valuable contribution to the work. The first illustrates the altitudes of the country, the second the zones of cultivation of the various plants, trees, and climate, the third shows the administrative divisions and communications, the fourth indicates the density of population, the fifth illustrates the relative importance of the cultivated crops and classifies the various zones according to their agricultural wealth; the sixth indicates the extent of the various crops by zones.

The author's endeavour to provide almost complete statistical material for a country hitherto much neglected deserves recognition. A summary in English, French, Spanish and German and a large bibliography are given at the end of the book.]

E. G.

GOIDANICH Prof. Dott. G., BORZINI Dott. G., MEZZETTI Dott. A., VIVANI Dott. W., *Ricerche sulle alterazioni e sulla conservazione della pasta di legno destinata alla fabbricazione della carta, eseguite nella R. Stazione di Patologia Vegetale di Roma. Ente Nazionale per la cellulosa e per la carta. Rome, 1938. 513 pp., figures and coloured plates.*

[The question of wood pulp preservation is very important in view of the appreciable losses that now occur. Hence the search for the best method of preserving the pulp from its preparation until it is finally transformed into paper.

Several countries are closely interested in this question. Outside Italy the paper manufacturing industries of North America, Sweden, Norway, Germany and other countries are beset by serious technical and economic difficulties and attempts are made to reduce the losses caused by the deterioration of the raw material during storage. These losses are reflected in a lower yield and quality of colour pulp and subsequently in a less uniform paper. The loss is particularly serious in paper intended for periodical publications. Factories which work mainly with wood pulp and which for economic reasons are obliged to hold stocks of pulp to be drawn upon when production falls off, can hardly maintain a constant balance between the woody mass which emerges from the stripping machinery and that absorbed by the paper-making plant.

This book gives an account of the work of Professor GOIDANICH and his collaborators on the biology of wood fungi and on the best methods of preserving the pulp, with the object of eliminating the substantial losses now suffered by the paper industry.

The book contains nine chapters. The first (*Notes on the production of wood pulp in Italy*, by G. GOIDANICH) gives some information on pulp production in Italy from poplar wood. Methods of cultivation and poplar improvements are described followed by notes on the working up of the raw material and the preparation of pulp which is pressed to yield an easily transportable product containing, according to the drying methods adopted, about 70 per cent. of water. The most serious deterioration of the pulp occurs during storing in warehouses, silos or in piles in sheds.

The second chapter (*The microflora of wood pulp*, by G. GOIDANICH) describes methods of analysing the wood pulp for the isolation of blueing micro-organisms. After

a study of the blueing micro-organisms of pulp in Italy, the author gives a methodical description of fungus forms, five of which appear to be new.

The third chapter (*Microflora of wood pulp, Bacteria*, by H. MEZZETTI) studies the bacterial forms isolated from wood pulp. The harmful effects of these are open to doubt and are certainly not as serious as those of the fungi. The author outlines the research programme to be followed on wood pulp bacteria.

Chapter IV (*Description, artificial reproduction and classification of spots*, by G. GOIDANICH and W. VIVANI) contains some considerations of the nature of the spots, their propagation and the damage they cause. A classification of 38 fungi is given in order of harmfulness, the most dangerous being *Haplosporella Vivianii* and *Phialophora Richardsiae*.

The fifth chapter (*Physiology and the biological action of the blueing fungi*, by G. GOIDANICH and W. VIVANI) is divided into three parts. The first deals with environmental factors influencing the vital and metabolic processes of the blueing fungi and, in particular, the temperature, humidity and aeration of the substrata, the chemical composition of wood pulp, the reactions of the substrata, and light. The last part of the chapter deals with the reciprocal action of the various micro-organisms in the wood pulp and gives many examples of phenomena of antagonism on which biological control methods are based.

Chapter VI (*Etiology and epidemiology of deterioration* by G. GOIDANICH, A. MEZZETTI and W. VIVANI) is also in three parts. The first deals with the origin, preservation and diffusion of the germ and the second with the various phases of the microflora in the different methods of treatment. The observations made show that when the wood pulp emerges from the mills it contains no fungi or only a small proportion, clear water also contains little but the air is relatively rich in them. Hence the pulp is contaminated during preparation by spores from the air. The third part considers the action of a bleaching solution made of bisulphite of soda as it has been observed that raw material treated with sulphite is more easily attacked by fungi.

Chapter VII (*Action of antiseptics in artificial substrata on the development of micro-organisms of wood pulp*, by G. BORZINI) contains some general considerations on the choice of antiseptics, the various concentrations to be tested on the wood pulp and the methods and substances used. The microbic flora examined comprise 15 fungi and 2 bacteria already described in Chapter II. The antiseptics which have given the best results in preventing or impeding the development of microbic flora are beta naphthole, sodium dinitrophenol, potassium bichromate, sodium fluoride, zinc chloride, boric acid and borax.

Chapter VIII (*Antiseptics in the preservation of wood pulp; practical trials in paper mills*, by G. BORZINI and W. VIVANI) consists of three paragraphs. The first deals with the experiments made by the "Cartiere Tiburtine" at Tivoli with wood pulp in lumps, involving the application, with or without a bisulphite of soda bleaching solution of the most promising antiseptics in the optimum proportions.

Borax (at least 1 per cent. of the fresh pulp), sodium fluoride (0.5 per cent.) and zinc chloride (0.9 per cent) gave excellent results. The second paragraph deals with the antiseptic treatment of pulp in granules not treated with bisulphite. At the end of about

seven months, the action of boric acid, Beta naphthol, carbonic acid and, in particular, salicylic acid antiseptics was seen to be insufficient even in maximum concentrations. The last named even encouraged deterioration. On the other hand, other antiseptics, including sodium fluoride zinc, fluorsilicate, borax sulphur dioxide, sodium fluoride sulphur dioxide gave good results. The third paragraph discusses the industrial application of these antiseptics.

Chapter IX (*General conclusions on the researches*, by G. GOIDANICH) indicates how and to what extent, industry can benefit from the researches.

A summary in Italian, French, English and German is given at the end of the book].

G. S.

Dott. VALENTINO DORE, *gerente responsabile*.

MONTHLY BULLETIN

OF

AGRICULTURAL SCIENCE AND PRACTICE

NEW ASPECTS OF NITROGEN FIXATION AND CONSERVATION IN TROPICAL SOILS

One great difference between temperate and tropical soil conditions is the slowness with which, in temperate countries, the processes such as the disintegration of parent rocks, formation and depletion of soils, plant growth and the like take place, and the rapidity of the same processes in the tropics. The average high temperature and soil, the intensity and distribution of the annual rainfall, the activity of microflora in the formation of organic substances vary considerably in the arid and humid, and the denuded and the covered areas of the tropical regions. While, in the parts covered with vegetation, a cooperation between these factors may enrich the soil in humus and organic matter to the extent of forming pockets of bogs and swamps, in barren, arid regions the disintegration of uplands and mineralization of plant residues may result in a deficiency in humus in the arable areas. The hot countries, for the most part, are known to suffer from such a deficiency.

Nitrogen fixation and nitrogen economy are, therefore, very important problems in tropical and sub-tropical countries. For tropical as well as temperate soils, the main sources of this element are the same: atmosphere, dead matter, and nitrogenous manures. The "nitrogen cycle" worked out in temperate countries holds good, in the main, for tropical countries also. Where the differences lie has recently been shown by the Indian school of workers led by Prof. DHAR of the Allahabad University. However, in order to appreciate better the theoretical and practical significance of the data given in the following paragraphs, it may perhaps be worth while to state briefly our current conceptions on those parts of the "nitrogen cycle" on which new light has been thrown during the last ten years or so. Our new knowledge concerns mainly the fixation of atmospheric nitrogen and its conservation in the soil. It is well known that the nitrogen from the atmosphere is fixed both directly and indirectly. Large quantities (a total of about 250,000 tons of nitric acid a day according to certain estimates) are fixed as oxides by electrical discharges in the atmosphere and conveyed to the soil as nitric and nitrous acids by rain, nitrates and nitrites being formed in the soil. Nitrites, as the nitrogen of organic matter and ammonium compounds, are frequently of little direct use as food for plants, and hence they must first be oxidized to nitrates. This is done, as BERTHELOT concluded and as WINOGRADSKY (1895) and BEIJERNCK (1901) proved, by the action of

certain bacteria, the process being called nitrification, a term first used by GEORGE MOORE. The nitrogen of the proteids is converted by bacteria like *B. mycoides*, *B. fluorescens* and fungi such as the *actinomycetes*, into ammonia which combines with the CO_2 produced to form carbonate of ammonia which in its turn is oxidized by the action of *Nitrosomas* into nitrites, and these again by *Nitrobacter* into nitrates, ready for immediate absorption by plant roots. The amount of nitrogen fixed by bacteria increases by 30 per cent if certain protozoa are present, although protozoa feed on bacteria. Atmospheric nitrogen is also fixed by certain bacteria such as *Bacillus radicola* living symbiotically with certain plants, chiefly *Leguminosae*. Altogether, the symbiotic nitrogen fixation is believed to enrich the soil by some 50-100 lbs per acre under normal conditions in temperate countries. The optimum conditions for nitrification may be roughly summed up thus: (i) suitable food for the microbes and fungi, *i.e.*, potash, sulphates, phosphates, carbon dioxide, lime, etc., (ii) basic material to combine with the nitric acid, (iii) absence of very strong light which may paralyse and eventually kill the nitrifying bacteria, (iv) sufficient moisture, (v) suitable temperature, and (vi) sufficient oxygen. Certain soil bacteria which fix atmospheric nitrogen and form nitric acid can work, however, only in the absence of oxygen, so that there must be other bacteria in order to help in removing the oxygen from the soil. Finally, various other species of bacteria bring about denitrification, and by their agency considerable quantities of gaseous nitrogen are returned to the atmosphere. All this shows that the importance of bacterial activity is preponderant in the processes of nitrification, ammonification and denitrification in the soil.

The study of the bacterial activities may be said to have begun with BERTHELOT in France, who found that sterilized soils do not take up nitrogen from the air, whilst unsterilized soils do, and he concluded that assimilation was due to micro-organisms. Recently, Prof. DHAR of the Allahabad University, India, using completely sterile soil and mixing it with certain energy-rich materials under sterile conditions, observed nitrogen fixation in light and concluded that soils can take up nitrogen photochemically from the air. It is stated that very large amounts of nitrogen are fixed in this way under natural conditions in the soil. Just as photosynthesis in plants, which is an endothermal reaction, takes place in sunlight or electric light when aided by the energy obtained in plant respiration, so nitrogen fixation according to the endothermal reaction $\text{N}_2 + \text{O}_2 = + 43.2 \text{ Cal.} = 2\text{NO}$ can occur in the dark—though more vigorously in sunlight or bulb-light if energy is made available by the oxidation of different energy-rich materials by air. The latter reaction is verifiable experimentally (6,10) and DHAR and SUNDARA RAO (9) actually obtained 9 mg. of nitrogen fixation per gram of cane sugar oxidized (*i.e.*, about 23 mg. of nitrogen fixed per gram of carbon oxidized) in the sunlight by passing sterile air through solutions of carbohydrates containing ferrous hydroxide, cerous hydroxide or sterile soil in the complete absence of bacteria. It is important to appreciate this, as the implications of recognizing that light plays a part in soils analogous to the part it plays in carbon-assimilation in plants may lead to a revision of ideas on some of the most important problems in soil economy in hot countries:— such as

nitrogen fixation and the bacterial situation, nitrogen fixation and manuring with carbohydrates, fats and certain organic acids, nitrogen conservation in the soil, use of composts, carbon-nitrogen ratio, alkali soils and their reclamation, etc.

(I) Nitrogen fixation and carbohydrates – Influence of light.

(a) EXPERIMENTS IN BASINS.

DHAR and co-workers first thoroughly investigated the changes occurring in the total and available (nitric and ammoniacal) nitrogen contents of the soil on the addition of different quantities of molasses to the soil. It is well-known that, in normal conditions, the nitrates and ammonia together rarely account for more than one per cent of the nitrogen in the soil (18). On the other hand, the molasses contains about 70 per cent of carbohydrates and traces of nitrogen, potash, phosphorus, etc. The experiments were conducted in dishes, basins and experimental plots, and in the fields. In the laboratory experiments, both sterilized and unsterilized soils were used, and these experiments as well as those in the experimental plots were carried out both in light and dark. To quote a typical experimental result: if 1 kg. of soil, preferably having a low nitrogen content, is properly mixed with a definite weight of carbohydrates, e.g., 50 gm. of starch in basins (diameter 26 cm.), adjusting the moisture content to 20 per cent. and if one set of basins is exposed to sunlight daily for eight hours and the other kept in the dark, it is found that there is more nitrogen fixation in light than in the dark. The nitrogen, carbon, moisture contents and bacterial counts of this experiment are given in table I.

Nitrogen fixed per gram of carbon oxidized is equal to 7.8 mgm. in light and 3.13 mgm. in the dark, i.e., more in light than in the dark even though the *Azotobacter* count in light is much less than in the dark. As there is more evaporation of water in light than in the dark, distilled water (16 per cent) was added every day to the exposed basins and once every three days to the basins kept in the dark. Another varying factor was temperature, which was higher (34°-48°) in the case of the exposed set than in the case of the dark set (28°-38°). Experiments were therefore repeated at different temperatures ranging from 11° to 60°, and the results obtained confirmed the conclusions given above.

The phenomenon has also been studied in artificial light from a thousand-watt gas-filled tungsten filament lamp placed at 30 cm. above the basins, with results which can be similarly interpreted. Using completely sterile (bacteria-free) soil with as low a nitrogen content as possible and mixing it with energy materials other than starch—which was used in the typical experiment mentioned above—under completely sterile conditions, nitrogen fixation has been observed in bulb-light as in sunlight. Definitely concordant and most promising results have been obtained by adding carbohydrates in the form of molasses, cane sugar, glucose, glycerol, mannitol, dextrin, fructose, maltose galactose. The amounts of nitrogen fixed per gram of carbon oxidized in light and dark are given in Table II.

TABLE I.

Date		NH ₄ N %		NO ₃ N %		Total N. %		Total C %		Moisture content %		Azot-bacter per gram of dry soil (in millions).	
L.	D.	L.	D.	L.	D.	L.	D.	L.	D.	L.	D.	L.	D.
10- 3-36	10- 3-36												
Original soil	Original soil												
9- 4-36	9- 4-36	0.001	0.001	0.0024	0.0024	0.042	0.042	0.441	0.441	1.6	1.6	7.2	7.2
30- 4-36	30- 4-36	0.001	0.001	0.0024	0.0024	0.048	0.042	—	—	2.0	3.2	6.0	8.1
30- 5-36	30- 5-36	0.0018	0.0014	0.0024	0.0024	0.0433	0.043	2.4485	2.5182	1.9	3.0	8.2	11.8
30- 6-36	30- 6-36	0.0023	0.0018	0.0025	0.0034	0.0442	0.042	2.37	2.4761	2.0	3.5	8.1	18.5
16- 7-36	16- 7-36	0.0029	0.0018	0.0030	0.0034	0.0451	0.0437	2.2765	2.3352	2.2	4.0	15.8	26.8
28- 7-26	28- 7-36	0.0033	0.0021	0.0035	0.0024	0.0461	0.0437	2.1733	2.3353	2.8	4.0	19.0	46.0
7-10-36	7-10-36	0.0037	0.0023	0.0035	0.0024	0.0472	0.0442	2.0232	2.2654	2.7	4.2	28.2	98.6
7-11-36	7-11-36	0.0032	0.0031	0.0036	0.0025	0.051	0.0461	1.4411	1.3286	3.0	4.8	38.6	205.5
7-12-36	7-12-36	0.0036	0.0032	0.0026	0.0025	0.053	0.0461	1.2598	1.2716	2.8	4.1	31.2	265.0
2- 1-37	2- 1-37	0.0038	0.0032	0.0026	0.0024	0.0533	0.0466	1.0151	1.5382	3.2	4.6	30.4	305.0
6- 2-37	6- 2-37	0.004	0.0035	0.0026	0.0024	0.0538	0.0472	0.7217	1.3124	3.4	4.5	32.8	365.0
2- 3-37	2- 3-37	0.0046	0.0028	0.0028	0.0025	0.054	0.0477	0.5983	1.0538	3.5	3.5	23.5	300.0
11- 4-37	11- 4-37	0.004	0.003	0.0028	0.0025	0.0547	0.0482	0.5684	0.7854	3.0	4.0	16.5	385.0
		0.0035	0.0034	0.0033	0.0025	0.053	0.0482	0.5436	0.5368	3.0	4.0	9.8	300.0

L. = in light. — D. = in dark.

TABLE II. — *Nitrogen fixed per gram of Carbon oxidised (Laboratory).*

Substance	In light (in mgm.)	In dark (in mgm.)
Cane sugar + CaCO ₃ 2 %	15.8	10.5
Cane sugar 2 %	14.6	10.2
Glucose + CaCO ₃ 2 %	12.5	6.5
Glucose 2 %	12.5	6.5
Glycerol 5 %	6.04	2.75
Starch 5 %	7.58	3.13
Mannitol 2 %	12.8	6.9
Dextrin 2 %	13.03	5.98
Fructose 2 %	11.0	6.8
Maltose 2 %	12.6	6.5
Galactose 2 %	12.09	6.7

(b) PLOT AND FIELD TRIALS.

Experiments were also carried out to see whether photochemical fixation of atmospheric nitrogen holds good under field conditions. Size of plots used was 6 ft. by 4 ft., and the plots that were not to receive sunlight were covered with wooden planks on raised bricks. These plots were watered once a week while, for reasons already noted, those exposed to sunlight were watered more frequently, *i.e.*, every four days. The soil in plots of the two sets was dug up simultaneously. *Azotobacter* counts, ammoniacal nitrogen, nitric nitrogen, total nitrogen and total carbon estimations were made at regular intervals. The amounts of nitrogen fixed in light and dark per gram of carbon oxidized of three of the substances mentioned above are given in Table III (*).

TABLE III. — *Nitrogen fixed per gram of Carbon oxidised (Fields).*

Substances	Rate of application (in tons per acre)	Nitrogen fixed per gm. of C oxidized, in light (in mgm.)	Nitrogen fixed per gram of C oxidized in dark (in mgm.)
Starch	8	16.5	5.9
Glucose	10	14	7.27
Molasses	20	8.9	3.96

Further, the experiments carried out with varying quantities of molasses showed that application of this substance at the rate of 3, 10, 20 and 40 tons

(*) These three tables are taken from a circular letter addressed by Prof. N. R. DHAR to different Soil Laboratoires.

per acre to normal soil exposed to air and sunlight, and turned over once a month, resulted in the fixation of 112, 270, 493, and 605 lb. of nitrogen per acre respectively. Addition of 493 lb. of nitrogen per acre of soil is stated to be equivalent to the addition of 22 mgm. of nitrogen in the first nine inches of the soil (6).

Another conclusion drawn from the results obtained on the addition of molasses is with regard to the available nitrogen (sum of ammoniacal and nitric nitrogen). The percentage of available nitrogen which, unlike that of total nitrogen, is much greater in tropical than in temperate soils, is maintained at a high level as the nitrogen fixed by the application of carbohydrates is easily converted into available form. It would be well to know whether this increased percentage of available nitrogen reflects on the plant growth and yield. It is not known whether systematic tests on a statistical basis were carried out in every case but some general results may be given. The two or three crops which seem to have been under trial were sugarcane, rice and wheat, and it was found at two places (Pusa and Madras) that molasses when added to the *growing* crop produced no beneficial effect. KERR, on the other hand, on applying 10 tons of molasses per acre in the Bundaberg farm in Queensland, is reported to have obtained 14.4 tons more of sugar cane per acre than in the control (without molasses), whereas CRABTREE working in the Fairy Mead farm in Queensland did not find any beneficial effect with molasses. BOOBERG (3) points to the advantage of applying molasses *before* planting both in the case of rice and sugarcane, and arrives at the conclusion that molasses can be economically utilized as a fertilizer(*). Recently, an increase of yield to 36 per cent has been reported at the Government Farm, Shehjehanpur (India), on applying 10 tons of molasses per acre *before* planting. The increase in yield of the same crop in Madras is reported to be even more, *i.e.*, 40 per cent (8). In 1936, DHAR conducted similar trials with paddy and found that by adding 3 tons of molasses per acre of land which was also molassed the previous year, and by digging and watering the land once in every 20 days in the hot months of May and June, 32.3 maunds (1292 kg.) of grain and 85 maunds (3400 kg.) of straw were obtained per acre as against 20.5 maunds (820 kg.) of grain and 38 maunds (1520 kg.) of straw in the control plots respectively. More recent work on the subject by SETHI, BATHAM and NIGAM in the United Provinces and by MIRCHANDANI in Bihar (India) seems to give further support to the conclusion that molasses adds nitrogen to the soil and improves the yields of sugar-cane, rice and also of wheat (6).

(2) Nitrogen fixation and cellulosic substances – Influences of light.

Although celluloses cannot be utilised directly in nitrogen fixation, the importance of the decomposition of celluloses as a source of energy for nitrogen-fixing micro-organisms has been pointed out by eminent investigators (2,13, and

(*) For details, *vide* "Miscellaneous Information" p. 197 of this issue.

16). The action of cellulose-decomposing bacteria or the symbiotic action of nitrogen-fixing and cellulose-decomposing bacteria is considered essential for this process of nitrogen fixation. It is also recognized that high temperature can be beneficial for cellulose decomposition (22). ALLEN, ABEL and MAGISTAD working on two lateritic acid soils (pH 5.0) in an 81 day experiment in cans, and mixing these soils with variously divided pineapple trash (stumps and leaves) containing about 34.05 per cent of cellulose and 45.70 per cent starch, found that the addition of the trash stimulated the growth of bacteria, fungi and actinomycetes, that there were no appreciable differences in the amounts of ammoniacal nitrogen but that the greatest average amount of nitrate nitrogen occurred in the soil containing coarse trash and the least in soil containing finely divided trash (1). It is not quite clear whether the cans were placed in the light or in dark, but it seems that they were sealed. The experiments in dishes carried out by DHAR and co-workers suggest that cellulose substances like dry leaves, filter paper, sawdust, cow dung, etc. cause nitrogen fixation when mixed with soil with or without molasses and exposed to sunlight, or diffused light.

Without reproducing here the numerous observations made, it may suffice to state the general result that this nitrogen fixation is greater in sunlight than in diffused light. The observations show that in either case, in sunlight or diffused light, the process goes on with a variable intensity, but the nitric, ammoniacal and available nitrogen were never below the original nitrogen content of the soil for the 5-8 months during which the estimations were made periodically. The results of the experiments in which the above substances were used mixed with small amounts of molasses (5 gr.), indicate that there is more nitrogen fixation than in the former case. Tests in open and covered plots seem to be carried out with only one of the cellulose-containing substances, the cow dung, which was applied at the rates of 34, 48, and 68 tons per acre. It was found again that in open plots there was marked nitrogen fixation in sunlight even in 33 days, whereas in the covered ones there was little or no fixation (7). These experiments firstly confirm that - as is well-known - the cow dung as a manure adds to the soil its quota of nitrogen, and secondly bring to light the fact that it enriches the soil by fixing atmospheric nitrogen, thanks to the oxidation of its celluloses, pentosans, lignin, etc. which takes place in sunlight and at high temperatures common to tropical countries. It is stated that, with cellulosic materials, the available nitrogen is always less in the beginning than that originally present in the soil. This appears to be the essential difference in the mechanism of fixation of atmospheric nitrogen by celluloses and carbohydrates. With the latter group of substances, the available nitrogen is always greater throughout the whole time of the process. In any case, in all these experiments the carbon has been found to decrease with time due to its oxidation.

If these experiments show the importance of cowdung manuring, they also bring to the forefront the whole problem of manuring with cellulosic substances (dry leaf, wood fibre, straw, etc.) and suggest the need of revising our theory of the use of composts, especially in hot countries. Straw, leaves and other plant residues have been utilised in the preparation of artificial farm-yard manure or compost from time immemorial, though it is practically only during the last two

decades that the subject has been studied scientifically. While almost all the investigators appreciate the value of composts in enriching the soil in plant food, a few show a certain scepticism with regard to the practicability of their preparation, as in some cases losses of nitrogen seem to have been noticed. In composting the main aim is to conserve the total nitrogen originally present in the materials and add it to the soil along with the carbon of the compost. The results obtained by DHAR and co-workers show that it is more profitable to add the cellulosic and carbonaceous substances direct to soil *before* they are composted. When the plant materials, which should not be in large excess, are added to the soil direct and ploughed under before the rainy season they are considerably decomposed and oxidized under the influence of sunlight and heat. Consequently they not only add to the soil the nitrogen they contain, but also increase the nitrogen content of the soil by fixing nitrogen from the air. It is further claimed that the method is found to improve not only the nitrogen conservation capacity but the moisture retention, the humus content, the carbon-nitrogen ratio and the general tilth of the soil. We shall come back to the more important of these points at a later stage.

(3) Nitrogen fixation, and fats and sodium salts of fatty acids.

LABORATORY AND PLOT EXPERIMENTS.

It is generally believed that fats are oxidized in the soil with great difficulty. DHAR and co-workers used 1 kg. of soil in their experiments and added 20 gm of butter, and found that nitrogen fixation took place in sunlight as well as in dark. The percentage of the nitric nitrogen remained constant in the 'exposed' experiment and decreased in the 'dark' one, but that of the ammoniacal nitrogen went on increasing during the two months or so covered by the observations made. At this period the available nitrogen content is definitely greater in the 'exposed' than in the 'dark' experiment. The figures for total carbon content and the number of *Azotobacter* in millions per gram of dry soil show an increase in the two experiments.

Sodium salts of various acids, such as sodium tartrate, sodium citrate, sodium oleate, sodium stearate and sodium palmitate, were added in amounts varying from 10 to 13 grams to 200 gm. of soil, and nitric N, ammoniacal N, total N, total C contents were determined as in the other experiments; the heat of combustion of the acid per gram was also determined in the case of the first three salts. The results show that the greater the energy liberated from the oxidation of the salts, the greater the amount of nitrogen fixation. With the first three salts, there is more nitrogen fixation than with the others.

Tests seem to have been conducted also in plots (4' x 4') with ghee and butter; two kg. of ghee were added to one plot and two and a half kg. of butter to another. The results confirm the main conclusion that in the oxidation of fats energy is liberated and this is utilized in the fixation of nitrogen from air.

(4) Carbon-Nitrogen ratio.

Microorganisms are known to play an important rôle in establishing a definite relationship between the two most important elements, carbon and nitrogen, in the soil. The ratio C : N varies with the type of soil. Broadly speaking, in the humid tropics it is 10 but seems to be higher in drier tropical and subtropical regions (21). It is generally believed that the combined nitrogen existing in the soil can form nitrate only if the C : N ratio is not greater than 10 to 11, unless the carbon of the carbonaceous matter is not readily available, *e. g.*, in the case of butyric acid and alcohol (22). If the proportion of readily available carbon is greater than the above ratio, the excess is oxidized to CO₂ and the nitrogen remains as a complex protein; on the other hand, if nitrogen is in excess, the nitrogenous substance is changed into ammonia and nitrate.

DHAR and co-workers studied the influence of temperature on the C : N ratio in soils by maintaining a sample of garden soil at 80°-85° for nearly two years. They found that the C : N ratio appreciably increased as the heating continued, and concluded that the higher the temperature of the soil the higher the ratio. This is in general agreement with observed values of C:N ratio in different parts of the world. Further, they contend that the C : N ratio is not controlled by the energy requirements of microorganisms but it is regulated by the ease with which proteins, amino acids, ammonium salts, etc. are oxidized by air, aided by light, bacteria and catalytic agents in the presence of carbonaceous substances. It is stated that when the carbohydrates and cellulosic substances are present in large amounts, the proteins, amino acids and ammonium salts present in the soil are protected from oxidation and are conserved in the soil. When they are oxidized to a great extent, ammonification, nitrification, etc.—which are also mainly oxidation processes—accelerated by sunlight, high temperature, catalysts, inductors, bacteria, etc., become prominent in the soil. In these processes, an appreciable loss in nitrogen in the gaseous state takes place (6).

(5) Denitrification.

The term *denitrification* generally designates the complete reduction of nitrates to atmospheric nitrogen and oxides of nitrogen, and not simply the reduction of nitrates to nitrites and ammonia or assimilation of nitrates by microorganisms. The two latter processes, it is believed, do not involve any loss of nitrogen from the soil. It is known, however, that nitrogen in the gaseous state is lost from soils when conditions are favourable for oxidation (14, 19, 20). The loss of nitrogen in this process may be as much as double the amount of nitrogen absorbed by the plant grown in the soil. But even greater losses of nitrogen are known to occur when a manure is composted under aerobic instead of anaerobic conditions. Experiments, conducted at different places show that the oxidation processes are more vigorous in soils with crops than in uncultivated soils. Hence, denitrification is most intense in cropped soils. Difficulty

is often experienced however, in explaining the precise mechanism of all the types of nitrogen losses from the soil which has been under cultivation for 20-30 years (18).

The various chemical reactions studied by DHAR and co-workers in light and in dark lead these investigators to explain the mechanism of the loss of nitrogen in the gaseous state from the soil. In the processes of ammonification and nitrification taking place in the soil or in solutions, ammonium nitrite is produced. Solutions of ammonium nitrite readily decompose into nitrogen and water by increase of temperature or exposure to sunlight or bulb-light. The formation of ammonium nitrite from ammonium salts or proteins requires oxygen and that is why this type of denitrification is facilitated by increased soil aeration and also soil acidity, as nitrous acid also undergoes decomposition, with an accelerated rate in light, according to the following equation:



That the loss of nitrogen (in the gaseous state) from the soil is due to the formation of ammonium nitrite is supported by certain manurial trials. The soil loses nitrogen in this way much less when manured with sodium or potassium nitrate than when manured with ammonium sulphate or organic nitrogenous manures, because with the latter class of compounds the unstable ammonium nitrite is formed.

With varying quantities of one of the above-named compounds which is known to form ammonium nitrite and thus cause denitrification, *viz.*, ammonium sulphate, tests were made in plots with and without the application of energy-rich materials. In the first set of experiments ammonium sulphate was added at the rate of 17.325 kg. of nitrogen per acre, in the 2nd 34.65 kg. of nitrogen per acre, in the 3rd 69.30 kg. of nitrogen per acre, in the 4th 138.6 kg. of nitrogen per acre, and in the 5th 277.2 kg. per acre each. The results indicate that a certain retardation of nitrogen loss is noticeable in the molassed plots. For example, with 138.6 kg. of nitrogen as ammonium sulphate per acre of land, the loss of nitrogen amounts to 34.2 per cent. in the absence of molasses, whilst with molasses it is 27.1 per cent.; and with 277.2 kg. of nitrogen, the loss is 43.9 per cent. without molasses and only 17.9 per cent, with molasses.

Similar comparative sets of tests conducted with ammonium sulphate, with cow-dung, green leaves and molasses also support the conclusion that the nitrogen loss is reduced by the addition of these cellulosic and carbohydrate substances.

(6) Alkali soils and their reclamation.

The alkali lands, of which large tracts exist in the tropics, are known to have the following main defects: (1) Alkalinity (pH of 10.8); neither *Azotobacter* nor nitrates can exist in alkaline soils. (2) Deficiency in calcium compounds and exchangeable bases. (3) Low nitrogen and carbon contents. (4) Impermeability

to water. (5) Feeble activity of microflora. The conversion of alkali soils into normal soils is a very serious problem. DHAR and co-workers who studied the causes of a normal soil in India becoming alkaline, also investigated the more important problem of the possibility of the economic conversion of alkaline land into normal soil. These studies included that of the pressmud, an easily transportable substance, which is turned out at the rate of 300,000-400,000 tons a year by the Indian sugar factories. The pressmud contains calcium salts and when mixed with alkaline soil is found to reduce effectively the pH of the soil. Molasses appears to possess the same property. Studying the effects of oils in the form of oil cakes (linseed, mustard, rape and "Neem" oil cakes) and cellulose materials, they found that the alkalinity of alkali soils is neutralized by the addition of all these substances. In field trials, molasses or a mixture of molasses and pressmud have been found excellent, even for bad alkali soils. The alkali soil which is a sodium soil is converted into a calcium soil which is normal, when a mixture of pressmud and molasses or molasses alone (which contains 2 per cent of lime) is added. These results have been confirmed in different parts of India (Mysore, Bombay, Bihar and the United Provinces) with applications of molasses varying from 1 to 10 tons per acre, and it is said that a fairly good rice harvest can be obtained from reclaimed areas where this crop completely failed in previous years, or where, in some cases, no vegetation of any type existed. On land reclaimed by molasses, it has been found possible to produce rice crops for two years or more successively without any further applications of molasses.

General considerations and conclusions.

The substances dealt with in the foregoing account are all energy-rich, and from the results of the numerous experiments carried out by the Indian investigators it appears that, in the oxidation of all such substances on the soil surface, nitrogen fixation is a general phenomenon. The importance of the bacterial activity in the soil is not denied—in fact a certain amount of adaptability is noticed in *Azotobacter*, the optimum temperature for the vital activities of which is found to be 35° for the tropics as versus 25° for cold countries—but enough evidence has been obtained to show that nitrification is not mainly a bacterial process. In tropical countries the nitrogen changes in the soil are due more to light and heat than to bacteria. Eighty per cent of the nitrate accumulation is known to take place in the upper 3 ½ inches of the soil. Meteorological observations indicate that the soil temperature in summer months in the tropics cannot be much below 50° even at this depth, so that very few bacteria can exist during this season in tropical soils. Yet the amount of nitrates in the soil is said to be at a maximum in summer. This, together with the observed photo-oxidation of amino acids to ammonia, of ammonium salts to nitrites, of nitrites to nitrates (not described here for want of space, and to avoid giving too many chemical details) and the fixation of atmospheric nitrogen, seem to indicate that sunlight and high temperature play a more important part than bacteria in the nitrogen economy of the soil in the summer months.

It need hardly be said that the above factors may represent some of the main elements in the potent natural process of recuperating soil fertility spoken of by many workers. The art of agriculture, on the other hand, has existed about 7000 years from its humblest beginnings (4) and one can say that man, consciously or unconsciously, has contributed considerably to soil destruction: witness "The man-killed hills of China" and the Sahara Desert (5). There should be a perfect balance between the nitrogen requirements of the crops we harvest and the natural processes that recuperate fertility. As to India—where the importance of this natural process has been recently thrown into relief—the fact that there are large annual increments of nitrogen in the soil has been established in all the provinces, and quantitative estimates have been made in Bombay, Central Provinces and the Punjab (17). That a balance between the two forces has been reached is demonstrated by the observed low—but stable—level of fertility of Indian soils maintained year after year perhaps through centuries (in respect of the alluvial soils of the United Provinces, 10 centuries (12)) in the absence of manuring and despite the annual losses of nitrates which, broadly speaking, are greater in tropical and subtropical than in temperate soils.

Of the three groups of substances, carbohydrates, celluloses, fats and acids, described above, molasses is obviously the more thoroughly worked out substance from the standpoint of the nitrogen economy of the soil. This is probably because approximately half a million tons of molasses are produced annually in India and their economic utilization is an important problem for that country. While it is true that molasses-manuring may prove of value to all sugar-producing tropical and subtropical regions, the possibilities of a more extensive utilization of the other groups, *viz.*, celluloses, fats and acids, should not be overlooked. A thorough study of acids from this point of view may be highly important, for Palestine, for example.

The photochemical interpretation of the nitrogen transformations in the soil is obviously a departure from the known procedure of interpreting these changes in temperate soils. This is not the first time, however, that particular hypotheses in biological fields have pointed the way to new creative advances; agricultural scientists should keep an open mind on the school of thought led by DHAR and his co-workers. Treatises on tropical soils should deal adequately with these phenomena. Should the claims put forward be substantiated by results obtained under different conditions of soil and rainfall in the tropics, manuring with carbonaceous and cellulosic substances and especially with molasses will become highly important in agricultural practice in tropical countries. A stage has been reached when all the practical possibilities of the findings should be investigated. It might thus be ascertained whether immediate results on a practical scale, can be obtained, and if so, whether judicious collaboration on the basis of these findings with the natural recuperative forces would tend, in the long run, to steadily raise the low cropping values of tropical soils.

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NEW DEVELOPMENTS IN DAIRY CATTLE BREEDING IN THE UNITED STATES

Several years have elapsed since the dairy cattle breeding world was amazed by news of record productions established by American dairy cows. It was to be expected that within a reasonable length of time, such outstanding animals would influence the production level of the dairy cattle population throughout the country.

This, however, has not been the case. The influence of these highly productive cows and their offspring has been confined to a relatively small number of outstanding pure-bred herds, and the level of the general dairy herd has shewn only a small rise during the past decades.

It is true that the principle of production breeding became rapidly popular throughout the dairy cattle industry. The Dairy Herd Improvement Association movement gave the average dairy farmer facilities for developping his herd towards an increase standard of productivity. The number of such associations and the number of cows tested by them has increased almost continuously from when the first cow-testing scheme came into operation in 1906. Nevertheless, the use of the records obtained by this testing work was lacking in efficiency. Even the better breeders limited themselves to selecting their animals for breeding purposes out of good producing cows, and did not care about the capacity of the animals to transmit good production to their offspring.

This was less true for pure-bred herds, where production testing was combined, from its inception, with the animals pedigree. Very probably, the rapid progress shown by production records of pure-bred herds was mainly due to this factor.

Considerable progress has been achieved thanks to the investigations made into the bull's capacity to transmit a certain production level. This study led to the discovery of methods of proving dairy sires and the different bull indices, described in a previous paper. Proving dairy sires has since been largely applied in the United States on the basis of records obtained by the Dairy Herd Improvement Associations and later by the Breed Associations. The results of bull provings are published by the U. S. Department of Agriculture in the lists of proved bulls.

Herd analysis.

While the breeding work has since been based, as far as bulls are concerned, on the transmitting ability of the animals, this has not been the case with the cows. It was generally considered sufficient to know the actual milk and butterfat production of the cow, as shown by her records.

In this direction, however, an almost revolutionary change has recently occurred.

Under the direction of Prof. S. J. Brownell the Dairy Extension Service of the Agricultural College, of Ithaca, N. Y., now examines the heredity of production of complete herds, both bulls and cows. These herd analyses are based on the principle that the transmitting ability of the animal is independent of its actual production level. This principle is not new and agrees with the general genetic findings made during recent years. What is new, however, is the introduction of this principle into the general practice of breeding dairy cattle and the method employed for this purpose.

Herds belonging to the dairyman who applies for an analysis of his stock are analysed by this Extension Service on the basis of all the records available going as far back as possible. They are reduced for this purpose to equivalents for a 305 day lactation period of 6 years old animals milked twice a day. The results of this analysis are given in the form of a pedigree chart showing in the horizontal columns the cow families composing the herd, and in vertical columns, the bulls with their respective daughters (see examples enclosed). To make the representation more easily comprehensible the production records are given in different colours according as they show increases or decreases, compared with their dams. The whole gives a very clear picture and permits, even at first sight, a judgement as to the transmitting ability in a cow family or in a bull, according to whether the blue or the red colour predominates either in the horizontal or in the vertical columns of the chart.

In addition to this pedigree, details of the results of the bull tests (average production of daughters, results of dam-daughter comparisons, number of dam-daughter pairs compared, number of pairs showing increases) are given with graphical representation of the bull's transmitting abilities.

The picture of his herd, as furnished by the herd analysis, shows the breeder the cow families and bulls of which good production inheritance may be expected. By selecting his breeding animals from such families and from the offspring of these sires, the breeder will have a high degree of probability of obtaining highly productive cows in successive generations.

The contrary will be the result if he selects his animals from families showing a considerable spread and irregularity in their production records. That this very often happens, even with highly productive cows clearly indicates the absence of linkage between the transmitting ability of a given animal and its actual production level.

These herd analyses, of which the methods have been worked out by Prof. S. J. BROWNELL, have furnished the breeder with the practical means of selecting animals for transmitting ability, and the results so far obtained are very promising.

Artificial insemination.

Naturally, animals belonging to highly productive strains, together with a stable transmitting ability, will greatly increase in value.

Although the cow may have the same probability of influencing the production level of the offspring, the importance of the bull is considerably greater

EXPLANATION OF FIG. 1.

Each group of five figures corresponds to one cow.

The three figures in the middle of each group signify (from top to bottom):—

- (i) number of the cow;
- (ii) average milk production;
- (iii) average fat production in lb.

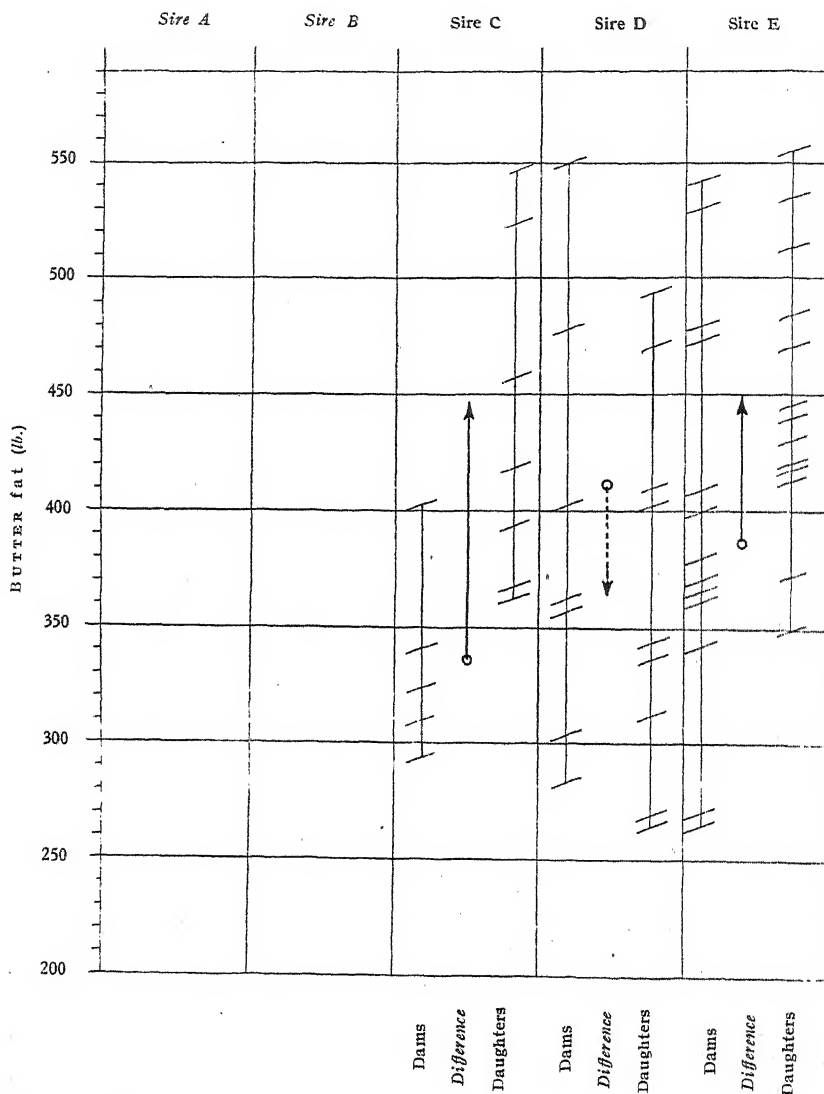
The figure on the left of each group gives the number of records (r) on which the averages are based; the figure on the right gives the average fat percentage.

If the cow's number is given in blue (in Fig. 1, in heavier type), her butterfat production is above the average of all daughters of the bull, if in red (*i. e.*, in Fig. 1, if in lighter type) *vice versa*.

The colour (in Fig. 1, the nature of the type) of the production figures shows the increase or decrease in production as compared with the cow's dam. (Blue — here heavier type — indicates increase, red — lighter type — decrease).

(N. B. — In the three original Charts by the Cornell University — *Vide* Fig. 1, 2 and 3 — Sire D, poor transmitter of productivity, is given in red type and Sires C and E, good transmitters, in blue type. In Fig. 1, 2 and 3, Sire D and Sires C and E are given in heavier and lighter types respectively).

FIG. 2. — Range in production of sire's daughters compared to their dams. Range in production indicates sire's dependability as transmitter of a certain level of production.



N. B. — In the original Chart by the Cornell University the two plain arrows in the above figure are blue and the dotted one is red (and plain).

because of the greater number of offspring which he is able to procreate. This fact emphasizes the necessity of making the greatest possible use of bulls with proved ability of transmitting high production levels and belonging to families

showing a certain concentration of genes responsible for high production. In this respect artificial breeding has an important place in the future American dairy cattle breeding programme.

By artificial insemination the number of offspring of an outstanding bull can be greatly increased.

As far as the technique of the artificial insemination is concerned, American science has so far not created anything essentially new. The American artificial breeding methods are based on the experiments made in the Soviet Union, the results of which were confirmed by the results obtained in the United States (2).

In this field, as with regard to the herd analyses, the methods of introducing the artificial insemination into the general breeding practice, merit particular attention.

An artificial breeding circle was founded in June 1938 in the State of New Jersey and was soon followed by a second organization of the same kind in the State of New York.

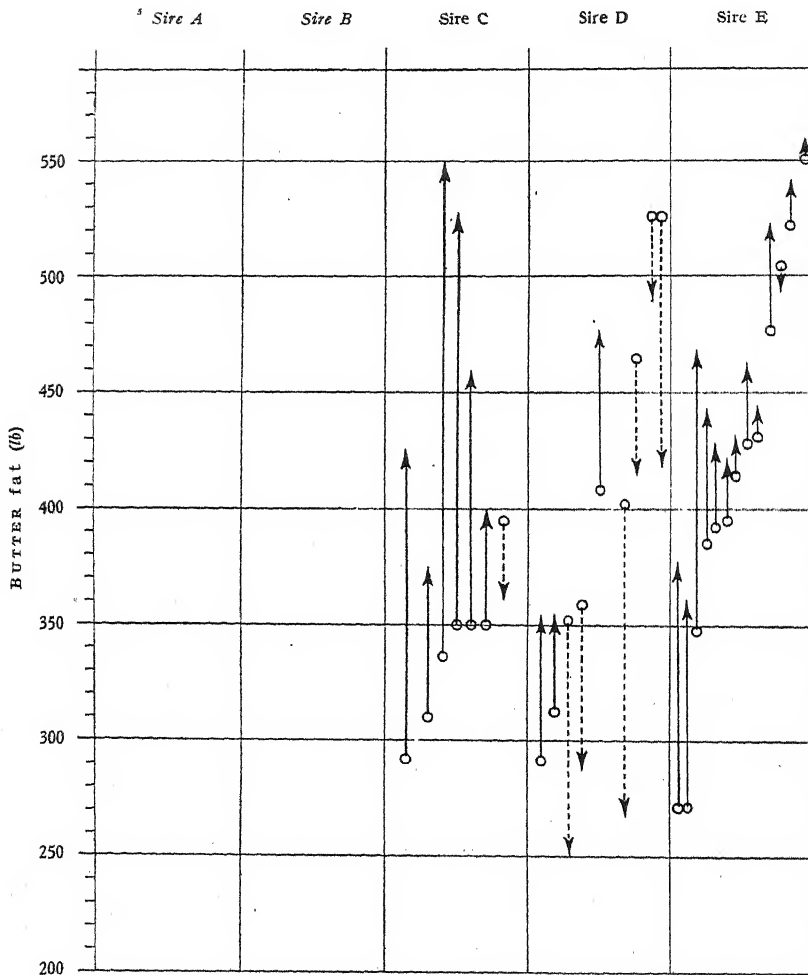
These are pioneer organisations which admit that their activities are "a demonstrational project, the possibilities of which have not been fully proved".

Nevertheless, they are of considerable interest and the participation of breeders in the project is extremely encouraging. This participation is greatly favoured by the spread present, of certain venereal diseases in cattle. It is hoped, that these diseases may be controlled by avoiding the direct contact between animals though the use of artificial insemination.

It may be of interest to the dairy breeders of other countries to have some details about the make-up of these pioneer-organisations. The Pioneer Cooperative Dairy Cattle Breeding Association (the organisation in New York State) began work on November 14, 1938. It has a minimum number of 500 cows; the total number of cows admissible under its regulations is 1200. Herds belonging to the associations should be located within a 20 mile radius of the Association's headquarters. The Association, which closely collaborates with the New York State and the New York State College of Veterinary Medicine College of Agriculture possesses two outstanding bulls belonging to the best production strains of the country. One is an 8-year old tested bull, and the other a young bull. Semen is collected from each bull on alternate days. Therefore one ejaculation is available every day, which - diluted - can fecundate several cows. When a cow comes in heat, the owner telephones to the headquarters of the Association and the Veterinary of the Association then calls at the farm in order to perform the insemination. If the first service is unsuccessful, a second and a third will be performed without charge. The Veterinary of the Association also examines the member's cows for pregnancy and is authorized to treat them if they show any breeding trouble. A certificate is issued by the Association after each successful breeding attempt, stating the bull's name and number, which in the case of a pure-bred animal can be attached to the Service Certificate of the application for registry in the herd-books.

For these services, the member-breeder pays a membership fee of 5 dollars and an assessment of 5 dollars per cow at the time when the breeding is per-

FIG. 3. — Chart showing individual dam-daughter comparisons for different sires. Upward arrows indicate increased production; downward arrows decreased.



N. B. — In the original Chart by the Cornell University, the plain arrows in the above figure are blue and the dotted arrows are red (and plain).

formed. These fees have been fixed provisionally; after further experience it will be possible to make permanent financial arrangements.

Performance registry.

The breed associations realized many years ago that the registry of animals in herdbooks on the basis of their pedigree only was not sufficient to bring about an increase in their production level. Supplementary registers have therefore been established within these organisations, called Advanced registry or Registry of merit. In addition to purity of breed, certain standards of production are required for being thus registered. From this registry of performance, however, animals remained excluded which did not belong to one of the established breeds, in the strict sense of this word, i. e. if their ancestors were not registered in one of the herdbooks, which have been closed for many years to the entry of non-descendants of herd-book animals. Animals remaining excluded form any performance registry constitute 97 per cent. of the total dairy cattle population of the country.

On the other hand, it has been recognized that the inheritance of producing characters has nothing to do with a given breed or with the characters of this breed, even if – as is true – best results were obtained in the past with pure-bred animals. The scientific considerations and the practical experiences leading to this opinion, have been dealt with in a previous paper. Little effort has been made, however, to introduce such concepts into general breeding practice.

An attempt in this direction now is being made by the American Dairy Cattle Club; as announced in this Bulletin, the Club has opened a performance register for all dairy animals meeting the requirements for registry, irrespective of breed.

The Advisory Council of the Club met recently in New York, in order to establish the general requirements for entry in the Club's registers, which hitherto were only of a provisional character. The discussions of the Advisory Council are very interesting and afford a good view of the present state of opinion in regard to these matters.

The result of the Council's meeting was the establishment of a scale of four orders of recording. The possibility of higher orders in the future has been left open. The minimum requirements for recording are given in terms of 6-year-old, 305 day, twice a day milking record, and for bulls in terms of the so-called American Index based on such records. (The American Index is founded on the concept that the average production of a bull's daughters lies exactly between the production of their dams and the production-transmitting ability of their sire).

The production records established for recording in the club's registries are the following:

	Females	Males (Indexes)	
Order I	A production record of not less than 305 days' duration or two daughters with records of not less than 300 lb. butter fat each . . .		
Order II	350 lb. butter fat	375 lb. butter fat	400 » » »
Order III	375 » » »	425 » » »	
Order IV	400 » » »	450 » » »	

As a general rule, recording in a higher order is only allowed if the animal is a descendant of parents registered in the next order below. An exception is made in the case of bulls having a 10-pair index of 450 lb. of butter fat or over. Such a bull is eligible for recording in the 2nd Order without any pedigree. The question of the possibility of recording bulls without pedigree in the 3rd order has been referred to the next meeting of the Council.

The American Dairy Cattle Club accepts all production records made under American Dairy Science Association rules which give the necessary guarantee for an exact and trustworthy execution of the tests. The animals are initially classified on the basis of the first production record for females and of the first 5-pair index for males. The final classification is made for females on the basis of all her production records when she ceases test, and for males on the basis of his final or first 25-pair index (whichever is completed first), provided that such production records or indices exceed the former records or indices used for initial classification by 10 per cent. or more.

Herd analysis, the introduction of artificial breeding into general breeding practice, and performance registry for good producing animals independent of any consideration of breed characters, are important steps forward. They make available to dairy cattle breeders the most recent results of scientific experiment in the field of dairy cattle breeding. As the average American cow does not pay, the problem of increasing the average production is, therefore, a very urgent one.

In a lecture delivered at the Farm and Home Week of New York State, recently held in Ithaca, N. Y., Prof. S. J. BROWNELL remarked that we live in a revolutionary period in the field of dairy cattle breeding. Breeding for performance was formerly the aim, but we are now entering the period during which more attention will be paid to the ability of the animal to transmit its production to its descendants. This new challenge may help to raise the general production level of American dairy cattle.

ST. TAUSSIG.

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PRESENT POSITION OF THE DAIRYING INDUSTRY IN THE DIFFERENT COUNTRIES: (20) YUGOSLAVIA ⁽¹⁾

Geographical survey.

The present Kingdom of Yugoslavia, constituted after the war of 1914-1918, includes the former Kingdom of Serbia, with the territories of Bosnia, Herzegovina, Dalmatia, the Vojvodina, Croatia, Slovenia, Slavonia and the former Kingdom of Montenegro.

The area of Yugoslavia is 247,542 km², and the population —consisting of Serbians, Croats and Slovenes—is 15,173,600, according to the statistics of the census of December 31 1936. In spite of a considerable increase during the last few years, *viz.*, from 48 inhabitants per km² (the figure of the previous census) to 61, the density of population is still low. The most populous areas are Croatia and Slavonia, with Slovenia and the Vojvodina. Old Serbia is more thinly populated, and the density is lowest in Southern Serbia.

The greater part of the country is situated in the Balkan peninsula, but the northern districts belong to Central Europe and in particular to the Pannonian basin. Yugoslavia may thus be considered both as a Balkan State and as a State of Central Europe. It lies between 41° and 47° Lat. N. and 14° and 23° Long. E. of Greenwich. Although it is a continental country, its situation in the South East of Europe, and its possession of the Dinaric coast region with Salonica, makes it a Mediterranean country also. It has 1,600 km. of Adriatic coastline and some 2,400 km. of land frontiers. The districts near the sea have warm summers and mild winters; the average temperature in January is 6° C., in July 24° C. The rainfall is very abundant; the maximum for all Europe is reached at Boka Kotorska. In the interior, that is, in the greater part of the country, the climate is continental: there are great daily and yearly fluctuations, the average temperature in January being -2° C., in July 20° C. Rainfall diminishes from the south-west towards the north-east.

Administrative organisation. — Yugoslavia is divided into “banates” (each named from the river which traverses it, except for the coastal banate which includes the greater part of the Dalmatian coast); Drava, Sava, Urba, Zeta, Drina, Morava, Danube, Vardar, and the Coast banate.

⁽¹⁾ Previous articles of this series: 1. France (November 1934) — 2. Italy (April 1935) — 3. Hungary (June 1935) — 4. Czecho-Slovakia (July 1935) — 5. Austria (August 1935) — 6. Switzerland (March 1936) — 7. Denmark (May 1936) — 8. Belgium (November 1936) — 9. Poland (February 1937) — 10. Bulgaria (March 1937) — 11. Latvia (April 1937) — 12. Lithuania and 13. Estonia (June 1937) — 14. Finland (November 1937) — 15. Norway (February 1938) — 16. Iceland (June 1938) — 17. Sweden (July 1938) — 18. Romania (August 1938) — 19. Albania (April 1939).

Agrarian reform.— After the union of Yugoslavia, the agrarian position was completely reorganised. In partitioning of lands, personal merit was taken into account: thus ex-service men had preference in the re-distribution. The large landowners received compensation for the lands which they were obliged to give up. By the Constitution of Vidovdan, which regulated the new system of land tenure, the lands were distributed by families. An internal movement of migration was thus set up, certain families changing their district in order to settle on new lands.

As a result of this agrarian reform, large estates no longer exist in the North of the country, but are still to be found in Southern Serbia. Speaking generally small holdings predominate: 68 per cent. have from 0.01 to 5 ha., 20 per cent. 5 to 10 ha., and scarcely 12 per cent. more than 10 ha. The distribution of rural ownership in Yugoslavia is shown in the following Table.

TABLE I. — *Farms in Yugoslavia grouped according to size.*

Size in ha.	Number of farms	Percentage	Total area
0.01 to 0.50	158,904	(8 %)	43,410
0.50 „ 1	175,532	(8.9 %)	135,760
1 „ 2	337,429	(17 %)	514,372
2 „ 5	676,284	(34 %)	2,287,570
5 „ 10	407,237	(20 %)	2,873,155
10 „ 20	174,068	(8.7 %)	2,381,826
20 „ 50	49,314	(2.4 %)	1,388,570
50 „ 100	5,156	(0.25 %)	388,070
100 „ 200	1,099	(0.05 %)	147,868
200 „ 500	494	(0.02 %)	145,549
+ 500	208	(0.01 %)	389,824
Total	1,985,725	—	10,645,980

Economic tendencies.

The population is for the most part rural, mainly engaged in arable and stock farming; the products, owing to the diversity in climate and soils, are very varied.

As agriculture is the principal resource of the majority of the population (80 per cent.), special attention is naturally given in the new State to this branch of the national economy. A number of measures have been taken for the organisation of the production and protection of farmers.

Scientific management applied to production and the standardisation of farm products have helped to increase farm incomes. The encouragement given to the co-operative movement, with the organisation of co-operatives for purchase, sale and production, has done much towards lowering cost prices and facilitating the sale of farm products. The establishment of credit institutions and of a

State Agricultural Bank for the sole purpose of making loans to farmers, the promulgation of numerous Decree-Laws and Orders relating to the protection of farmers, have all had the effect of preventing farm indebtedness at usurious rates.

The result of all these measures has been to increase the output of Yugoslav agriculture with an improvement at the same time in quality, and to raise the standard of existence of the rural population.

I. — Dairy cattle types and breeds.

Stock farming is an important branch of Yugoslav agriculture. The following table (taken from the *Monthly Crop Report and Agricultural Statistics*) shows the variations in the live stock numbers during the years 1920, 22, 24, 26, 28, 30, 32, 34 and 1936

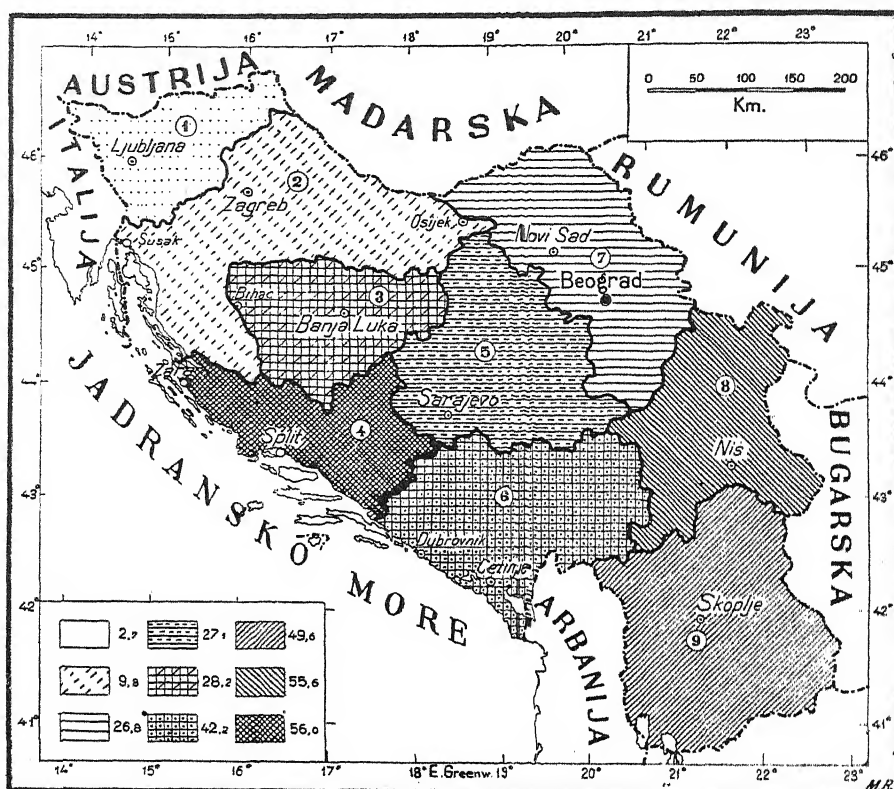
TABLE II. — *Live Stock Numbers (1920-1936).*

Year	Cattle	Horses	Asses	Mules	Sheep	Goats	Pigs	Buffaloes
1936....	4,079,729	1,216,085	123,461	17,987	9,568,338	1,905,993	3,126,241	37,217
1934....	3,989,947	1,205,865	120,034	17,678	8,867,685	1,881,126	2,791,592	38,929
1932....	3,812,208	1,156,997	114,719	16,449	8,510,441	1,871,618	2,863,177	38,704
1930....	3,812,172	1,161,235	106,944	15,843	7,953,139	1,731,430	2,923,862	37,487
1928....	3,654,261	1,109,246	103,528	15,165	7,722,247	1,750,006	2,662,790	32,116
1926....	3,706,019	1,116,858	96,298	14,551	7,932,845	1,721,263	2,806,182	31,519
1924....	3,784,267	1,053,875	89,779	14,190	7,618,708	1,718,368	2,517,955	28,626
1922....	4,058,419	1,043,528	86,036	15,002	8,461,504	1,801,409	2,887,020	31,938
1920....	4,951,339	1,062,343	84,182	18,091	7,002,124	1,552,555	3,349,504	31,470

In proportion to its area and population, Yugoslavia holds an important position specially as regards small live stock, in European countries.

	per km ²	per 1,000 inhabitants
Horses	5 (4.88)	82
Cattle	16 (16.46)	270
Sheep	39 (38.66)	630
Goats	8 (7.70)	126
Pigs	13 (12.63)	206

The different kinds are distributed irregularly in the different territories. The largest proportion of the horses, nearly half the total, occurs in the Vojvodina nearly half the cattle in Bosnia-Herzegovina; three million sheep in Serbia, and as many in Bosnia-Herzegovina.

MAP. — Number of sheep per km² in the different banates.

	Sheep per km ²		Sheep per km ²
1 = Banate of Drava	= 2,7	6 = Banate of Zeta	= 42,2
2 = " Sava	= 9,8	7 = " Danube	= 26,8
3 = " Urba	= 28,2	8 = " Morava	= 55,6
4 = " Coast	= 56	9 = " Vardar	= 49,6
5 = " Drina	= 27,1		

(I) Bovidae.

(a) CATTLE.

The native breeds belong to two types: *Bos brachyceros Illyricus* ADAMETZ and *Bos Taurus primigenius*. The former is undoubtedly the older type and the more numerous.

The indigenous breeds are found both pure and crossed. The most widely diffused, representing 80 per cent. of the total cattle, is the Illyrian, the indige-

nous breed found in the western part of Yugoslavia and extending northwards as far as the Save and southwards as far as Albania. It is of small size, and the coat varies greatly: it may be white, yellow, red and even ebony black, but always of one colour and seldom striped. ADAMETZ distinguishes three types according to colour: the light coloured Illyrian, the brown and black, and the striped. The live weight of the cows is from 250 to 350 kg. (sometimes 100 kg. only). The annual milk production varies from 900 to 2000 litres with a high percentage of butter fat.

The Illyrian breed belong to a primitive stock, which was not intensively bred, now mainly found in the poor regions of the Karst. It is a very hardy breed with few special requirements. With proper attention and good feeds, the cows yield abundant milk with a very high proportion of fat. To this group belong all the indigenous short-horned sub-breeds, of Croatia, Slavonia, Bosnia, Herzegovina, Montenegro, Dalmatia, Serbia and Macedonia.

In addition to the indigenous Illyrian cattle, there are also the indigenous steppe cattle.

These are found especially in Syrmia, Vojvodina and Posavina, and are typical descendants of the Hungarian steppe cattle.

The Posavina cattle represent a degenerate type of this breed known as « gulja ».

The steppe cattle are also used as work animals; crossings of the Illyrian and of the steppe cattle have given rise to the various sub-breeds: *Colubara*, *Morava*, *Bihac*, *Tuzla*, which almost without exception resemble the steppe cattle in colour, while in their conformation they show the influence of sometimes one, sometimes the other breed.

With a view to the improvement of the indigenous breed, the Zillertal-Tuxer, the Mölltal, the Pinzgau and the Simmental breeds have been introduced into Croatia-Slavonia, and the Montafon breed into the Karst districts. In Slovenia, there are already tracts of country where there are found clearly marked breeding stocks of acclimatized breeds, in Carniola: Simmental, Montafon and Pinzgau; in Styria: Murboden, Lavanttal, Mariahof and Montafon; in these parts stock breeding has reached a high degree of perfection, and the products are in demand on the world markets, especially for the quality of the meat. In the Vojvodina the steppe cattle predominate, crossed with the brown mountain cattle and with the Simmental. In Bosnia-Herzegovina the Mürztal were first introduced, and then the Wipptal and the Pinzgau. In Serbia the Mürztal and the Mariahof were introduced, but had no decisive influence; later the Allgäu, Montafon and Simmental were also introduced, so that there is a great diversity of breeds.

It will be seen that the picture presented by the breeds, sub-breeds, crossings, etc., is somewhat complex. A decisive influence, however, has been exercised only by the Pinzgau, the Simmental, the light-coloured and gray brown mountain cattle. The tendency of the breeding is towards a distinct separation between slaughter stock and dairy cattle.

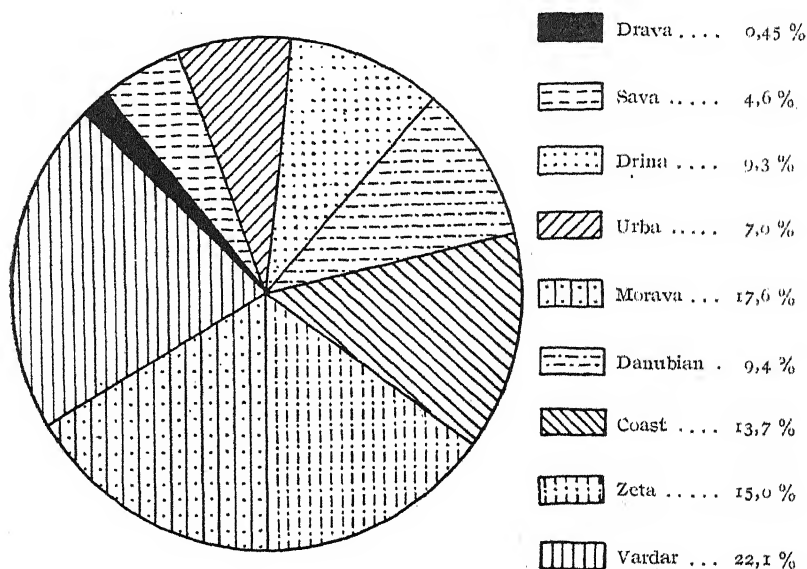
(b) BUFFALOES.

Buffaloes are bred only in Southern Serbia, their numbers are now hardly 37,000 head.

(2) Sheep.

Sheep farming is of great importance in Yugoslavia; owing to the natural and economic conditions sheep farming is widely diffused and at the same time carried on by extensive methods.

GRAPH I. — *Number of sheep in the different banates in 1929-1932.*



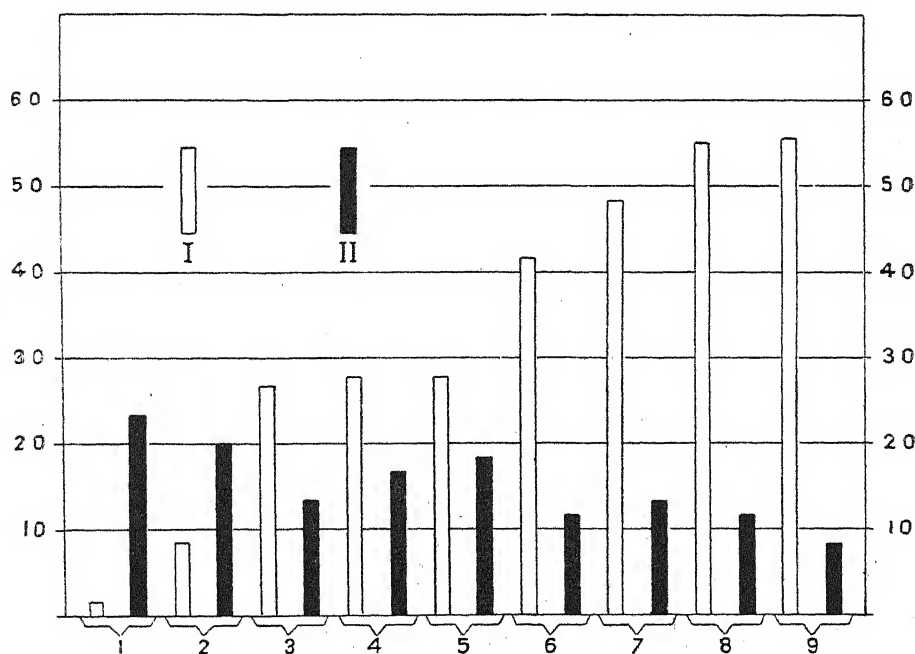
The number of ewes in the different banates is sometimes very small. Thus in the Drava banate, according to the figures of 1929-32, there are only 2.7 sheep per square km., and in the banate of the Sava 9.8. In other banates the numbers are higher, in the Danubian 26.8 sheep per square km., in the banate of Drina 27.1, of Urba 28.2, of Zeta 42.2, of Vardar 49.6, of Morava 55.6, in the Coast banate 56, as shown on the accompanying map on page 186 (1).

(1) Dr. Athanase MITROVIĆ, Source of wool and improvement in quality in our Kingdom. *Arhiv. Ministarstva poljoprivrede*, Belgrade, 1934. (In Yugoslav.)

Graph I shows the number of sheep in each banate, compared to the total number existing in the country. For the period 1929-1932, these percentages were as follows: Drava 0.45, Sava 4.6, Urba 7, Drina 9.3, Danubian banate, 9.4, Coast 13.7, Zeta 15, Morava 17.6, and in the Vardar 22.1. The banates poorest in sheep are thus Drava and Sava, and those with the largest numbers Vardar, Morava, Zeta and Coast. In these last the sheep form the only wealth of the inhabitants, out of which they pay their taxes, provide for the upkeep of their animals and for family needs. In many districts, sheep farming is an additional source of income compensating for the scanty income obtained from the remainder of the live stock. Hence sheep are mainly found in districts where the cattle numbers are small: in 1929-1932, there were some 22.5 cattle per square km. in the banates poorest in sheep (Drava, 24.2 head of cattle, Sava 21.4), while the contrary was the case in the banates where sheep are most numerous (Coast banates, 9.6 cattle per square km., Morava 11.9, Zeta 12.4 and Vardar 12.7).

The relation between the sheep and cattle for each banate is shown on the accompanying graph II.

GRAPH II. -- *Relation between the number of sheep (I) and cattle (II) for each banate.*



Banates: 1 = Drava; 2 = Sava; 3 = Danubian; 4 = Drina; 5 = Urba;
6 = Zeta; 7 = Vardar; 8 = Morava; 9 = Coast.

Many regions, with large tracts of waste lands on which clearing is impracticable, are utilised profitably for grazing of flocks. Excellent conditions for sheep farming occur in the wooded and hilly regions.

Breeds of sheep include the *Zackel* breed or *Wallachian* sheep with its numerous sub-breeds, accounting for some 90 per cent. of the sheep numbers, the *Cigaja* and its crossings with the *Wallachian* sheep and with the *Merinos*, and finally the *Seebodner* (derived from the *Kärntner* and the *Bergmasco*) in small numbers.

The *Zackel* is bred for the triple purpose of milk, wool and meat. The quantity of milk supplied by the ewes is from 35 to 60 litres, corresponding to a yield in cheese of from 8 to 12 kg. The sheep vary in weight from 25 to 45 kg.

The *Cigaja* is bred mainly for wool and meat, the live weight being between 45 and 50 kg.

The sheep belonging to the *Seebodner* breed are raised for milk, wool meat. Their live weight is from 50 to 60 kg.

(3) Goats.

The red breeds of Bosnia are preferred, they are not easily distinguishable as to coat, height, etc. They all belong to the Central European type of goat (*Capra prisca*). Their milk yield is much higher than that of sheep (120-180 litres). The skins are utilised for the manufacture of carpets, stuffs, etc.; the meat is dried (*castradina*) or salted.

Latterly the *Saanen* goat has been introduced.

II. — Milk Production.

Although stock breeding is fairly well developed, there is no real dairying industry in Yugoslavia except in the northern plains. As stock farming is of the extensive type, the milk is mainly used for feeding calves. There are no markets in the true sense. The chief markets such as those of Belgrade, Agram, Ljubljana and Novisad are of the peasant type. Nearly all the towns have a large rural "hinterland", which supplies them with milk, butter and cheese.

Larger towns such as Agram and Ljubljana, however, already obtain milk handled on modern lines. Dairies are also found at Osijek, Marbourg, Novisad, Serajevo, while at Belgrade the milk passes directly from the producer to the consumer. The small farmers bring the milk into the town, direct to houses and to market.

The following figures will give an approximate idea of the milk production (some 3,000,000,000 kg.):

1,900,000 cows yielding an average (ranging from 900 to 2000) of 1350 litres milk	=	2,565,000	l.
6,600,000 ewes yielding an average of 30 litres milk . . .	=	198,000	l.
1,500,000 goats yielding an average of 150 litres milk . . .	=	225,000	l.
		<hr/>	
		2,988,000	l.
		<hr/>	

Milk recording has been introduced with success in certain districts, but it is not yet applied on a large scale.

Yugoslav dairying is slowly but surely adopting modern technique. Active support is given by the State, but the dairy farmer is hampered by various legislative difficulties and by inadequate means of communication. It seems probable, however, that an important dairying industry will eventually be organised.

III. — Butter Production.

The quality of the butter, coming as it does mainly from the farms, is not entirely satisfactory. It is made both from cows' and sheep's milk, the latter mainly in the south of Serbia and in some parts of Central Serbia and from of Bosnia.

In these districts, in addition to butter made from fresh sheep's milk, another type is made from the residues of the making of kachkaval cheese. This butter is mainly exported to the Near East, where it is used in cooking, mixed with mutton fat, under the name of "Siberian butter". Some 120,000 kg. of butter in all are exported, especially to Turkey, Greece and Albania.

Internal consumption is small, as lard and olive oil are largely used, especially on the Dalmatian coast. The dairy butter made in northern Yugoslavia is of good quality, but is not in demand except in the towns, principally in the north. The butter made on the State desmesne "Belje" should be specially mentioned; it is excellent and is used to supply the capital. Milk and other dairy products are also supplied from this estate.

IV. — Cheese production.

There is a great range of cheeses made either from cows' milk, or from sheep's or goats' milk, or from mixtures of cows' and sheep's milk. The best known cheeses are: Kachkaval, Trappist, Trafnik, sheep skin cheese, smoked cheese, Somborer cheese, etc.

Of less importance are the imitations of Emmental, Gorgonzola, and of other foreign cheeses which are made with varying success. Latterly the making of melted cheese has been introduced, apparently with success.

More modern methods are used in cheese production in the north of the country, where there are five modern factories making Emmental, Trappist cheese, melted cheese, Edam and Liptau. In Bosnia, even before the war the making of Roquefort and Liptau cheeses on an industrial scale had been attempted and the antiquated methods of making native sheep's milk cheese were abandoned.

Among the best known cheeses is the *kachkaval*, made with sheep's milk. The centre of the production of this cheese, which is made also sometimes with cows' milk, is southern Serbia, in the Pirot region.

The following description of its manufacture is taken from FILIPOVIC: warm milk, immediately after milking, is placed in wooden receptacles. From two to four hours is required for the formation of the curd, which is then broken up, using a wooden stirrer with a cross-piece, into pieces the size of a hazel-nut. The mass is turned upside down and the whey is collected with a large spoon through a canvas cloth placed over the whole; this process lasts from one and a half to two hours. The mass of cheese is then taken out, placed in a cloth, laid on a table, and pressed, using the lid of a vessel and a lever. Large stones are then laid on the lid so as to drain the curd completely. This process requires from one to one and a half hours. The mass is then cut into pieces of about 250 g., and these are placed in baskets and plunged into water at 65° C, the whole being turned about in the water. When the curd can be drawn out into long filaments, the treatment is complete. The mass is then placed in the moulds, where it remains for 12 hours without being pressed; the cheese is then taken out of the moulds and salted for 12 days, and finally placed to dry on racks or shelves. Pasteurisation of the curd is a feature of this process. *Kachkaval* is exported to Greece, Egypt, Turkey and other parts of the Levant.

Another important type of cheese is the *Trappist*, originally made at the convent of "Etoile Marie" in the Banja Luka, by the Trappist monks. This cheese, which has a world reputation, is very like the French Port-Salut. According to A. Törs, the Trappists do not make exclusive use of cows' milk in the manufacture, but add sheep's milk and possibly also goats' milk. As compared with the Port-Salut product, a higher yield is obtained in the case of the Trappist. According to WINKLER, the milk is curdled at 28° for 60 to 90 minutes, and the curd is warmed again from 35° to 42° C. A light pressing only is given and a soft delicate product obtained. The cheeses weigh about 1 kg.; they are placed in the ripening cellar and rubbed from time to time with a cloth soaked in hot salt water.

Trafnik Cheese. — This cheese is prepared mainly in the western and northern part of Novibasar, and also in the highlands of the Vlasnik-Planina (to the north of Trafnik in Bosnia). The milk of Wallachian sheep is mainly used, and the cheese shapes weighing 25 to 63 kg. are placed in casks of the form of a truncated cone on a narrow base. In Bosnia and in Herzegovina this cheese is in great demand; 100 kg. of sheep's milk yields from 18 to 21 kg. of cheese, and during the full lactation period, even more.

Sheepskin cheese. — This cheese is made along the Adriatic coast. The milk is warmed in a cauldron at about 30°C; it curdles in half an hour; the curd is sliced using a wooden spatula, and is stirred for 30 minutes. It is again warmed, the whey is collected and it is warmed again. Warming and filtering go on for an hour. The mass is then taken out and left for one to three days. It is then cut into pieces of about 100 g., salted and placed in a sheepskin. This cheese, when it is prepared hygienically and with full milk, has a very pleasant taste and the smell of the sheepskin is not perceptible.

Somborer cheese. — The milk is curdled at 30 to 35° for a fairly long time. The curd is crumbled, put into cloths and pressed. It is then sliced into pieces and placed in casks which are filled to overflowing. The containers, which are narrower at the base, hold from 10 to 15 kg. The ripening lasts from 2 to 3 weeks.

Croatian smoked cheese. — This is prepared from fresh milk still warm or lightly warmed with a little of the curd from the previous cheese making. The whey has to be green before the curd is taken away to be pressed. The cheese is placed in small basins and again pressed by hand; it is then left for half a day. The smoking is continued for from 4 to 8 days, thus ensuring external disinfection and good keeping quality. Each cheese weighs from 350 to 700 g. This type is mainly produced in Croatia.

Skorup cheese. — This is a soft cheese, somewhat oily, obtained from cows' milk. It is mainly prepared in Montenegro. The milk is warmed, and the cream allowed to rise for 24-28 hours. The cream is collected, salted and placed in a hermetically closed receptacle. This cheese is half solid, containing much cream, and has an average content of 25 per cent. water and of 62 per cent. fat.

Manur cheese. — This is a fatty cheese prepared with sheep's milk, sometimes also with cows' milk. It has the appearance of a clod, cleft down the middle.

Sir mostny or Presukasa. — This is a cream cheese having a diameter of 40 cm. by 2 to 3 cm. in height.

Sir posny or Twdr sir and Mrsay sir. — A hard skim milk cheese, made from sheep's milk. The cheeses are from 20 to 25 cm. across and from 4 to 5 cm. thick; the weight is 1.75 kg. Prepared in old Serbia and Montenegro.

Macedonian cheeses. — *Mintzitra*, a fresh cheese, soft, made with sheep's and goats' milk; the *ftinoporino* also prepared with sheep's and goats' milk, and much resembling the *brynza*; the *zadila*; the *qacheq*.

In the manufacture of cheeses in Yugoslavia, vegetable rennets are much used. Eight factories are engaged in preparing these rennets, from turnip and from *Calamus*.

The consumption of cheese in the country is comparatively small, as it is regarded among the less well-to-do classes as luxury food.

The cheese exported is almost entirely kaschkaval, the export reaching about 2,000 m. tons per year. It is much in demand in Greece, Egypt and Turkey.

V. — Other products.

As the introduction of modern technique and organisation into the Yugoslav dairying industry has only just begun, there are no factories of milk powder, casein, etc.

Some production of dried milk has however been initiated at Staro Petrovselo.

R. GASSER.

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MISCELLANEOUS INFORMATION

TABLE GRAPE AND RAISIN PRODUCTION IN CYPRUS. — The world production of table grapes and raisins has increased considerably during the last few years, the principal countries producing and exporting table grapes being Spain, Bulgaria, Italy, Algeria and Greece. The last-mentioned country comes first in the production and export of raisins, followed by the United States, Australia and Turkey.

Cultivation of table grape varieties on a commercial scale is of fairly recent date in Cyprus, as until 1929 there were only a few small vineyards at Pitsilia and Stavrounoui. Since then, however, some quite extensive plantations have been started in the Famagosta and Limassol districts. The following are the varieties most widely cultivated:

The *Alexandria Muscat* is much appreciated because it is very productive and proves extremely resistant to wind and great heat, even without irrigation. This variety thrives on all soil-types and in every part of the island. It is subject to shedding but this defect is less marked in Cyprus (especially in the vine-growing areas of the island), than in other places. Ripening takes place during the latter half of August (early variety) and extends into September according to the altitude and locality of the vineyards. The grape stands shipment without evil effects and is a favourite on the British and Scandinavian markets. This variety is subject to attacks of *oidium*.

The *Rozaki* is a mid-season variety (late September) with satisfactory heat-resistant qualities, especially when it is not irrigated. Its beautifully formed clusters and large oval grapes make it a great favourite and it is considered one of the best export varieties; it is much appreciated on the English market.

The *Fraoula* mid-season variety, introduced from Greece, grows in deep, fertile soil and gives an abundant crop. The fruit grows in fine clusters with large oval grapes, but is unsuited for shipment to distant markets. This prevents it from becoming a favourite, but vine-growers use it for supplying the island markets and those in neighbouring countries (Egypt, etc.).

The *Sideritis*, introduced from Greece, is a late variety which does not ripen until November. Its growth is not very vigorous. This variety requires deep soil and may be irrigated. The clusters and grapes are medium in size. These grapes can stand long shipment and are fairly popular on the English market.

The *Sultana* variety, a native of Asia Minor, is characterized by its seedless grapes; it is very productive and thriving in deep, fertile soil. The grape is either small or medium-sized.

During the past ten years several other very interesting varieties have been introduced, including the Pearl of Csaba, imported from Hungary; this is a very early variety which ripens at the beginning of July; the bunches and grapes are medium in size and stand shipment to distant ports. The *Hamburg muscat* is one of the best and most delicious of the red muscat grapes but is not very productive and is not suitable for long shipment. The *Himoniatiiko* variety is sometimes found in Cyprus, ripening late (in December at Saitta) and serving the Christmas market.

Most of the types of soil in Cyprus are suited to the cultivation of the several varieties of table grapes and raisins, vineyards being found almost everywhere throughout the island. It is expected that this crop will become increasingly important during the next few years.

MOJASSES-MANURING IN THE NETHERLANDS INDIES *. — A great number of tests were carried out with molasses-manuring on all the cane estates in Java and the results obtained are given in a bulletin (1932) of the Pasuruan Sugarcane Experiment Station, Java. Not all these tests may be considered as conclusive, but a high percentage of them correspond to the mathematical exigencies of field tests. The mean error has always been calculated and the tests are divided into three categories; (1) tests where the favourable or unfavourable difference is thrice M; (2) where it is twice M; (3) where it is $\frac{1}{3}$ of M. Four hundred and thirty-two tests were worked out in this way, some over a series of years, the number of observations made totalling 769. The general conclusion arrived at is that molasses can be economically utilized as a fertilizer.

When applied *before* planting, molasses gives excellent results with rice. This is especially true in western Java. The effect lasts for more than one crop year; sugarcane — coming after rice in rotation — also shows an increment in yield even though no molasses is applied. This long-term effect is also noted on sugarcane, planted in the third year, after rice-sugarcane. There are indications that this effect is independent of the actual amount applied.

No significant difference was found when the molasses was applied to soils with hardpan formation. Sandy and heavy clay soils gave 73 and 49 per cent. favorable and 3 and 23 per cent. unfavourable results respectively. Best results were obtained on sandy soils in the Principalities of Djokja and Solo and in the Modjokerto district, less remarkable results on light clayey soils in Koedoes, Djckja and Solo, and on the heavy clayey soils in Cheribon, and the lowest percentage of still less remarkable — but favourable enough — results was obtained on heavy clayey soils in Modjokerto.

It is worthy of note that the effect of molasses-manuring, broadly speaking, was pronounced on soils with an insufficient water supply. Molasses is said to increase the moisture retention capacity of the soil.

Boniteit is defined as the potential capacity of the soil to produce sugarcane when a "normal" dose of ammonium sulphate is applied to the soil. This capacity is inversely correlated with the degree of favourable effect of the molasses on yield of sugarcane. This may explain why molasses gives better results on sandy than on clayey soils; the sandy soils selected for tests had a lower potential production capacity than the clayey soils.

Although the chances of increment in cane production increase with decreasing potential production capacity of the soil, the sugar percentage actually diminishes with soils having the characteristic values for this capacity. For example, the decrease in yield of sugar is 0.26 per cent. for sandy soils, 0.13 per cent. for light clayey soils, and 0.04 per cent. for heavy clayey soils. The decrease in sugar percentage was noted in 70 per cent. of the observations on light soils and in 56 per cent. on heavy soils. This decrease varies, however, with the dose applied and method of application. If applied at the rate of "one tin per furrow", (1) the average decrease is 0.36 per cent., at the rate of "two tins per furrow", it is 0.49 per cent. Further if applied *before* planting, it is 0.32 per cent., and *after* planting, 0.38 per cent. In the first case, it should be applied preferably in the furrows and in the latter, probably on the ridges.

* BOOBERG, G., Samenvattende bewerking van de resultanten der proefvelde bij de rietcultuur op Java, 31ste Bijdraghe: Melassebemesting. *Archief voor de Suiker industrie in Nederlandsch-Indië* 1932, Deel III, No. 4, blz. 193-318.

(1) 1 tin = 17 litres (1000 furrows in a hectare, i. e., 2.471 acres).

To sum up: molasses gives better results than any of the second rate manures. Some soils respond better to molasses-manuring than others. In the former case, much higher results can be obtained with molasses than with an extra dose of ammonium sulphate or liberal doses of phosphates and potash. On light soils molasses is definitely preferable to farmyard manure, ashes or filter-mud, and if applied *before* planting may give better results than even green manuring. The following methods of economic application of molasses are recommended: (1) Apply molasses, diluted with irrigation water, in doses corresponding to "one tin per furrow" *before* or *after* rice, but in either case three months before planting. (2) Apply undiluted molasses at the rate of "1-2 tins per furrow" three weeks *before* planting. (3) If molasses is applied after planting it should be used, undiluted, on the ridges, or, diluted with irrigation water (1 per cent.), in the furrows. Lastly, molasses stocked for a year sometimes gives better results than fresh molasses.

W. B. and G. T. K.

ITALIAN NATIONAL CONGRESS ON THE HORSE, THE ROAD AND THE VEHICLE. — Under the above title a National Italian Congress was held in Verona on March 12 and 13 last, for the purpose of studying the rational utilization of the horse.

The subjects discussed were as follows: comparative cost of animal and mechanical traction; types of paving suited to roads used for animal traction; rational construction of vehicles; rational construction of wheels and material to be used for tyres; harness; shoeing of horses.

It was decided to compile a book of the proceedings of the Congress and to communicate the principal conclusions to the International Congress of Animal Husbandry to be held shortly in Zurich.

E. M.

BOOK NOTICES *

MONTALENTI Giuseppe, *Elementi di Genetica*. Licinio Cappelli, Bologna, 1939. 453 pp., 122 illustrations.

The study of genetics is of extreme importance at the present time; as the basis of all that concerns plant improvement, stock selection, racial studies, eugenics, etc., it plays an outstanding part in the solution of the most important and difficult problems now being discussed throughout the world.

It may be stated without exaggeration that of all the biological sciences, genetics has made the greatest progress during the present century. After the period of early gropings in past centuries, the science of genetics began to take shape with the evolutionary theories of the 19th century. It was not until after 1900, however, that, following the rediscovery of the Mendelian theory, genetics ceased to be a mere branch of botany and zoology and became a separate science, which has developed

* Under this heading are included short synopses of books received for review.

with great rapidity and covers an increasingly wide range of study. New methods are discovered from day to day and new problems opened up.

This development in scope and profundity has led to the need for a scientific and complete work dealing in summarized form with the various questions as a whole and serving as a guide to the subject in general.

This work will consequently be well received, particularly as no similar study existed in the Italian language.

Zoology being the branch of study in which the A. specializes, this subject is naturally dealt with at greatest length; this gives uniformity to the work as the whole subject is studied from a characteristic point of view. Accordingly, most of the examples and illustrations are drawn from zoology and those interested in animal husbandry will find in the book much that they will appreciate.

The book is divided into 8 parts: Biological Basis and the Historical Development of Genetics - Variability - Mendelism - The Theory of Chromosomes - Mutations - Sex - Phenogenetics (manifestations of genes) - Practical Application of Genetics.

The chapter dealing with chromosomes is the most comprehensive, much space being devoted to a description of the experiments and work carried out by Morgan and his school.

The chapter on "Sex" is perhaps the most interesting, however. The A. describes his personal studies which have already formed the subject of an article in the XXXth volume of the *Enciclopedia Italiana*. The theories of sex determination are especially well developed and discussed. The same may be said for the question of intersexuality and secondary sexual characteristics. The part played by chromosomes in sex determination is discussed at length and it is to be hoped that the Author's opinions on this subject, founded on research and statistics, may be studied and assimilated by those practical farmers who have somewhat fantastic ideas in this connection. From the farmer's point of view, the most interesting is the last chapter, dealing mainly with the practical application of genetics. The reader will also find an excellent description of blood groups, the transmission of a tendency to cancer, eugenics, etc., as well as general views on the highly practical utility of genetics in every branch of life.

N. G.

BENVEGNIN L. *Les bases d'une cidrification rationnelle*. Lausanne, 1938, 39 pp.

The intention of the A., who is head of the Chemical and Bacteriological Division of the Federal Station of Experimental Viticulture and Arboriculture at Lausanne, is to provide farmers with a handy guide to cider-making. He has used the works of several authors as well as his own observations with considerable success in compiling this little book. He gives farmers clear instructions on all the essential elements for the preparation of this health-giving and pleasant drink.

The first part of this manual describes the preparation and storing of the material which is of such importance in the manufacture of a good cider, while the second part deals with gathering the apples and treating the fruit and must, as well as the way to keep the cider when made.

The small farmer will find in this little book a short but very clear and exact description of the various phases of cider making.

A. P.

VAGELER, P. *Grundriss der tropischen und subtropischen Bodenkunde*. — Zweite Auflage, Berlin, 1938. Verlagsgesellschaft für Ackerbau. 252 pp. 28 einfarbige Tafeln, 2 farbige Bodenprofile.

The A. of this excellent manual on tropical and subtropical pedology has devoted much care to the preparation of the second edition which appeared in 1938. His present work as head of the Soil Section of the Agronomic Institute at Campinas in the State of Sao Paulo, has enabled him to make extensive studies of soils in Brazil and also to put the many valuable Brazilian publications on this subject within the reach of European readers who either did not know of them or were unable to consult them owing to the language difficulty. Dr. Vageler's work is founded on long experience acquired in Africa, the Netherlands Indies and Brazil.

The basic ideas are the same as those presented in the first edition; recent observations made in Brazil have in no way altered the theories already expounded, but have enabled him to make an even closer study of important questions.

Mention should be made of the 17 new plates published in the present edition showing the action of various agents (water, wind, fire, etc.), on the soil and of the selection of interesting photographs of characteristic parts of Brazil.

W. B.

Dott. VALENTINO DORE, *gerente responsabile*.

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CITRUS IN THE UNITED STATES

SUMMARY:— 1. Introduction; 2. Present state of cultivation; 3. Varieties and stocks; 4. Experiment stations; 5. Picking and handling; 6. Packing and transport; 7. Trade; 8. Canning and by-products; 9. Conclusions; 10. Bibliography.

Introduction.

Fruit growing and horticulture developed greatly towards the end of last century, under the favourable conditions of temperature and moisture and following the economic development of the country, especially the great extension of railways and other means of rapid transport to all the main centres. Since the beginning of the present century, fruit growing has become very important and at present the United States is one of the largest producers in the world, particularly of apples, citrus and pears, in that order.

The orange-tree was introduced into the United States by Spanish explorers about the beginning of the XVIIth century and was first cultivated in Florida (San Agostina); later it reached California, introduced at the end of the XVIIIth century by Spanish missions at San Diego, San Gabriel, etc. These missions also introduced the olive-tree, fig-tree and other fruit trees. Recently, orange cultivation has spread to other States, particularly Texas. In 1835, a severe frost destroyed a part of the small orchards of orange trees at San Agostina. In California the first orange orchards were planted in 1841 at Los Angeles with trees from the Mission of San Gabriel, but only from 1870 on were oranges grown commercially, in the neighbourhood of the present town of Riverside. Since then the extension of orchards has been continuous.

Present State of Cultivation.

In view of the special climatic requirements of citrus cultivation, production on a commercial scale is limited to the south of the United States, principally Florida, California, Texas and Arizona. In recent years, production on a small scale has also been undertaken in Alabama, Louisiana and Mississippi. At present Florida and California between them produce 97 per cent. of the oranges in the United States, while Florida and Texas produce 85 per cent. of the grapefruit. The principal centre of production of lemons is in California and of tangerines in Florida. The other varieties of citrus (bitter orange, bergamot orange, lime and citron) are very little grown in the United States.

According to the latest available statistics, the total area of citrus orchards in the four largest producing states (Florida, California, Texas and Arizona) is 705,000 acres, of which 473,000 consist of orange orchards, 200,000 of grapefruit and 32,000 acres (about half each) of tangerines and lemons.

Citrus is the main agricultural industry of Florida. Citrus cultivation has developed there with extraordinary rapidity since the War. Up to 1894, the annual production of oranges averaged 4 million boxes per year, but the frosts of 1894, 1895 and 1899 so reduced the crop that the average annual production of the period 1895-96 to 1901-02 fell to only 400,000 boxes. From 1902 production began to rise again and in the period 1910-1918 averaged 7,300,000 boxes. From 1918 on the increase in production has been very great. The average crop in 1920-1930 was 16,400,000 boxes, and in 1930-1937 18,600,000. The 1937-38 oranges crop was 24,400,000.

In Florida citrus cultivation is at present mainly in the centre of the State. Most of the orchards planted in the north (1885-1899) were abandoned at the beginning of the century owing to frosts.

Orange production is the principal citrus production in Florida. Of a total of 63,000 farms, 22 per cent. of which are run by negroes, in 25,000 the principal crop is oranges, in 16,000 grapefruit and in 3,400 tangerines and lemons.

Nevertheless, generally speaking, the same farm grows all three varieties of citrus either alone or in association with other fruit or horticultural crops. The value of orange production in Florida averages 63 per cent. of the total citrus production, that of grapefruit production 30 per cent. and tangerines the remaining 7 per cent. Eighty per cent. of the citrus orchards are run by the owners, the remainder being directed by managers or leased out. The value of all citrus production (oranges, grapefruit and tangerines) in Florida is nearly 50 per cent. of the annual agricultural revenue of the State.

California produces 60 per cent. of the oranges in the United States. The production of *navel* oranges has remained constant or even tended to increase. Of a total of 148,000 farms in California, 42,000 are devoted to citrus only or citrus and associated crops, and of these 58 per cent. consist mainly of orange orchards, 28 per cent. mainly lemons and 14 per cent. mainly of grapefruit. While in California only a little over a quarter of agricultural holdings are citrus growing, in Florida the proportion is nearly three-quarters.

As has been said, Florida and California between them supply 97 per cent. (37 and 60 per cent. respectively) of the oranges of the United States, but Florida is the centre of grapefruit growing and California of lemon growing. Lemon trees are indeed grown in nearly all the citrus areas of Florida; but production is very limited and almost entirely reserved for domestic consumption, since maturation is not always sure. California contains 94 per cent. of the total lemon orchard area of the United States, and thus holds a virtual monopoly over lemons on the home market.

Grapefruit production is rather recent, being a purely post-War development. In 1914 it was still at the domestic production stage. Cultivation began in Florida but in the last 20 years has developed to a remarkable extent in Texas, where in 1919 there were only 86 acres of orchards; in 1930 there were 32,000 acres

and in 1938 91,000. The largest grapefruit centres in Texas are in the three counties of Cameron, Hidalgo and Willacy in the Rio Grande Valley.

Florida has for long been the largest grapefruit producing state. In 1921 it supplied 94 per cent. of the grapefruit of the country. But since then the proportion has steadily declined until in the 1937-38 season it was only 50 per cent. of the total. Meanwhile production in Texas, California and Arizona, particularly the first-named, increased correspondingly.

Of the 30,700,000 boxes of grapefruit produced in the United States in 1936-37, 9,630,000 came from Texas (against an average of 1,457,000 in 1928-1932) and 18,100,000 from Florida (against a similar average of 11,657,000); the remainder came from California and Arizona. In the 1937-38 season, of a total crop of 28.5 million boxes, 13 million were produced in Florida and 11 million in Texas. In the last few years there has also been a very marked development of orange growing in Texas, where suitable soils are available.

Of the 34,638,000 orange trees of all kinds cultivated in California, Florida, Texas and Arizona, 45 per cent. are not yet in full bearing, being from 5 to 15 years of age. The total number is divided as follows: 19,741,000 in California, 13,135,000 in Florida, and approximately 2 million in Texas and Arizona together.

Of the total orange trees under cultivation, 9,040,000 or 26 per cent. are from 5 to 10 years old. In this group 4,402,000 are in California, 3,271,000 in Florida, 917,000 in Texas and 450,000 in Arizona.

The number of trees from 11 to 15 years old is 3,690,000, or 19 per cent. of the total, divided as follows: 3,289,000 in Florida, 2,881,000 in California, 492,000 in Texas, and 28,000 in Arizona.

The number of trees from 16 to 20 years old is 5,696,000, or 17 per cent., and those 21 years old or over 13,212,000, or 38 per cent. of the total of 34,638,000.

In recent years, preference has been shown for planting late varieties (Valencia) rather than early varieties. The total number of late varieties of orange trees (Valencia, etc. summer oranges) in the United States is 18,411,000, 51 per cent. of which, being aged from 5 to 15 years, are not yet in full bearing. Almost two-thirds of these trees are in California and one-third in Florida. The total number of early varieties (navel etc. winter varieties) is 16,227,000, of which 39 per cent. are from 5 to 15 years old and not yet in full bearing.

The total number of grapefruit trees in the four producing states (Florida, Texas, California and Arizona) is 12,777,000, of which 69 per cent. are from 5 to 15 years old and not yet in full bearing. Only 31 per cent. of grapefruit trees are 16 years old and over and therefore in full bearing. Over half of the trees are only 5 to 10 years old and consequently an increase in production may be looked for. Most of these young trees are in Texas; for every tree that Florida has in this age-group, Texas has 3 $\frac{1}{2}$. In California and Arizona also there are more trees of 5-10 years old than in Florida. The number of trees from 11-15 years old is about equal in Florida and Texas. Of the grapefruit trees grown in the United States 69 per cent. are late varieties.

The tangerine tree is hardly grown except in Florida, where there are 2 million trees (principally in Polk and Orange counties). Since 1930 the production of tangerines in Florida has nearly tripled, rising from 8,000,000 to 23,000,000

boxes. Briefly, the large proportion of young citrus trees in orchards promises a further increase in production in the next five years. The largest increase will be for grapefruit, particularly late varieties, a characteristic feature of grapefruit cultivation being the large proportion of newly planted and young trees not yet in full bearing. The greatest number of young trees is in Texas, which approaches the total number of trees growing in Florida. The production of oranges will also increase in the next five years, a quarter of the trees being under 11 years old and consequently not yet in full bearing. It may be estimated that the production of oranges will be stabilized at an average of about 60-65 million boxes a year, against 53 millions in 1931-32 to 1936-37. The largest increase will be for late varieties (Valencia), while the production of Navel oranges and other early varieties will not increase to any great extent in the next few years.

The citrus industry is an important item in the country's agricultural income. For example the value of oranges and grapefruit in the period 1925-26 to 1929-30 averaged 135.5 million dollars against 92.2 million in 1930-31 to 1933-1934. The fall was due to the low prices of the fruit in the 1932-33 season. From 1934-35 the value rose and in the last five years averaged 115.6 million dollars, 92.3 million of which was for oranges.

On the whole, holdings are smaller in California than in Florida. In the former state, 75 per cent. of farmers have an area of between 3 and 100 acres, while in Florida holdings of under 20 acres are rare. The agricultural population of Florida is 18 per cent. of the total population of the state, and in California only 10 per cent.

Land is more expensive in Florida than in California, but labour is cheaper. Two-fifths of the population of Florida is negro, who are employed especially for manual labour. Wages for this labour are about 30 per cent. lower than those for whites. In California wages are higher, and for certain workers in orange groves yellow labour is employed.

The annual rainfall in Florida averages 50 inches. Although the rain is well distributed over the year, there is a period of drought from March to mid-June, during which it is necessary to irrigate orchards. The Florida peninsula is a flat, sandy and marshy region with various types of soil (sandy, mixed sand and clay, slimy, etc.). The best orchards have been planted on hillsides. The most important factor in citrus growing in this region is conservation of the fertility of the soil. A large proportion of soils are very sandy or even pure sand. They lack nitrogen, phosphorus and potash, and the general practice of farmers is to employ complete chemical as well as organic fertilizers. Grapefruit trees require more fertilizers than orange-trees, and tangerine trees more than either.

Varieties and Stocks.

Almost all the Californian orange trees are based on two varieties, the Navel and the Valencia. For Florida, Hume cites more than 50 cultivated varieties, but the most common are: Parson Brow (early), Pineapple and Enterprise seed-

less (mid-season) and Valencia (late). The Washington Navel Variety, of which 50 per cent. of Californian orange groves consist, is not very widely cultivated in Florida, since weather conditions do not make it sufficiently productive. This fact is beneficial for the development of citrus growing in the United States, since it has avoided competition between the two largest orange-producing areas.

As stocks for orange-tree grafting the following are used: *C. aurantium* L., *C. limonium* R., *C. vulgaris* R., (*C. bigaradia* D., *C. bigaradia* G., *C. bigaradia coronata*) and *C. decumana*. For tangerine trees *C. trifoliata* is used.

The following table shows the adaptability of the three stocks to conditions in Florida, according to experiments made in several parts of the state. Index 3 denotes perfect adaptability, 2 medium response, and 1 the least satisfactory response.

	Wild lemon tree	Grape-fruit tree	Bitter orange tree
1. - Rapidity of growth	1	2	3
2. - Composition and quality of fruit	3	2	1
3. - Fertility	1	3	2
4. - Conservability	3	2	1
5. - Resistance to cold	3	2	1
6. - Resistance to base rot	3	2	1
7. - Resistance to disease of top	3	2	1
8. - Adaptability to acid and light soils	1	2	3
9. - Adaptability to "heavy hummocks" and to soils with clayey sub-soil	3	2	1

Although the grapefruit tree has, on the average, the advantage over the others, it is far from being the most acclimatized, since in the very important conditions Nos. 2, 5, 6 and 7 the wild lemon tree is most successful.

Experiment Stations.

Experiments with citrus are carried out on various citrus Stations and also by the Associations or Co-operatives of citrus growers.

In California the Citrus Experiment Station at Riverside undertakes all kinds of direct and indirect experimental work in regard to orange and lemon production. This station has research services for agricultural chemistry, vegetal physiology, vegetal pathology, maintenance of orchards, selection, entomology, beneficial insects etc. In addition, it has local consultation agents and publishes the results of its researches in pamphlets, circulars, press articles, etc. A summary of the work is also published in the Annual Report of the University of California at Station Berkeley.

In Florida the Citrus Experiment Station at Lake Alfred studies the selection of stocks, manuring, pruning and the combatting of pests, especially the

Aphis Spiraecola (citrus green-fly). The most suitable soil conditions for citrus are studied at Eustis, and fruit characteristics at the Official Laboratory at Orlando.

Experiments with citrus are also made by a large number of associations and co-operatives. The California Fruit Growers' Exchange, for example, though a private institution, possesses research services, laboratories and trial fields, directed by first-class specialists, often from the services of the Federal Ministry of Agriculture. The results of the researches in regard to varieties, combatting insect pests, etc. are printed and receive a very wide publicity.

Finally, several reviews are devoted to citrus cultivation and the industry. Among them may be mention The California Citrograph, a monthly publication, edited at Los Angeles, which gives a mass of technical and economic information on all citrus problems.

Picking and Handling.

Picking is very a important operation and demands great care. It must be carried out by skilled workers, for the fruit must not be allowed to fall and must not be handled roughly, if it is to be spoilt as little as possible. If the fruit falls, even from near the ground, it must not be packed. For picking the harvesters use baskets or sacks which they carry on their shoulders. Generally speaking, baskets are used for fruit on the lower branches, which can be reached by hand without a ladder, and sacks for the higher branches. These sacks, of sail-cloth and containing a half-box, are open at the top and have a flat bottom closed by clasps, by means of which they can be emptied easily. The best types of sacks are made so as to increase or reduce their depth by raising or lowering the bottom.

The state of maturity of an orange, which hardly changes after it has been picked, is determined by the proportion of soluble substances contained in the juice. This proportion is calculated by the aerometer. The laws of Florida and California require that oranges marketed should not contain more than one part of acid, expressed in citric acid, per 8 parts of soluble substances. For grapefruit the proportion is rather higher, since this fruit is naturally richer in acid. For lemons, size is the factor taken into consideration; the minimum size for summer picking is 2 $\frac{1}{4}$ inches diameter and for winter picking 2 $\frac{1}{2}$ inches with certain allowances. A lemon picker carries a ring, which he uses from time to time to check fruit.

The fruit must be cut with great care exactly on the peduncle without this forming a projection which could prick other fruit during manipulation. The type of clippers preferred in Florida for this operation is the short curved "tuttle". It should be noted that in wet weather the skin of the orange bruises and tears more easily than in dry weather.

The evolution of the present methods of preparing the fruit for the market is undoubtedly the most interesting part of the history of citrus cultivation. In the past the fruit was despatched in boxes, barrels and baskets of different sorts and sizes and, although on the whole it was of good quality, owing to the defect-

ive systems of handling it often arrived at the market in poor condition. The type of packing at present in use in Florida for citrus was started by Mr. E. Bean and the success of his system has caused it to be adopted in nearly all the other fruit-growing areas of the United States. The boxes used for harvesting have a slightly larger capacity than those used for picking. The ordinary dimensions are 12 inches wide, 28 inches long and 13 inches deep, with or without central divisions. These boxes must always be in good condition, must not have sharp or too fine edges, nails or splinters, and must be closely examined before use. For transporting the fruit from the harvesting ground to the packing station low carts with springs were formerly used. They are still used on a small scale, but trucks have now replaced these carts almost everywhere. When the fruit has been picked, it must not be exposed to the sun, nor may the boxes to be used for packing. The conservation of citrus fruit depends on the care taken in handling. The slightest scratch may mean the development of mould germs.

Packing and Transport.

The handling of citrus in California and Florida has been radically transformed in the last ten years. The small local packing stations have completely disappeared, giving place to large well-equipped central houses for both packing and despatch. Uniformity has also been achieved in handling, picking, and in the product destined for the consumer's market. These houses have normally three floors. On the first the fruit is received and washed and there is a store of packing material (boxes, paper, etc.); on the second, where the offices are situated, the fruit is graded by size and quality, the boxes are wrapped up, sealed, and marked; on the third the fruit is stored and the boxes are manufactured. These houses must be centrally situated, so as to receive as much fruit as possible, while lying near a railway line, to which they are connected by a special branch line.

The boxes of fruit brought to the packing station are discharged on to conveyors, which carry them to the wasroom, where they are emptied. The empty boxes are then carried back by the same conveyor. In the washing machines the fruit is passed between revolving brushes, which completely remove all impurities; then they go to the drying machine. The latter receives a current of hot air. The fruit is carried near the machine by a conveyor and leaves the other side already dry. The fruit is then carried by another conveyor to the sorter, operated by expert workers, who examine the fruit as it passes. The fruit rejected is put on one of the conveyor belts and the remainder is classed by size and quality. Each size is carried by one of the belts to the sorting machines, which separate the fruit according to the standards adopted. Fruit which is not round (lemons, limes, etc.) must be sorted visually, before or at the moment of packing. Under the regulations lemons must fill a ring of 2 1/4 inches diameter. Those which do not attain this size are put aside. First quality fruit must be firm, ripe, well formed, glossy, with a thin and unblemished skin, without insects etc.

In the United States there are various standards for citrus boxes according to the size and quality of the fruit and the way in which they are packed. The commonest dimensions are as follows:

Types	Interior dimensions (in inches)	Capacity (in cubic inches)
Florida orange boxes	12 × 12 × 24 ⁷ / ₈	3,556
Florida tangerine boxes	6 × 12 × 24	1,728
Florida lemon boxes	10 ¹ / ₂ × 14 × 24	3,528
California orange boxes	11 ¹ / ₂ × 11 ¹ / ₂ × 24	3,174
California tangerine boxes	6 × 12 ¹ / ₂ × 24	1,800
California lemon boxes	10 × 13 × 25	3,250
California Jumbo lemon boxes	11 ¹ / ₂ × 13 ¹ / ₂ × 25	3,574
Italian lemon boxes	10 ¹ / ₂ × 13 ¹ / ₂ × 25	3,544

Generally, the number of fruit per box is 54 to 250 in the case of oranges, according to size; for grapefruit from 14 to 96 per box; and for lemons from 105 to 250. In order that the fruit may exactly fill the box, they are sorted so that each piece of fruit will occupy the place assigned to it in a diagram. The fruit of an upper layer must not lie exactly on top of the fruit on a lower layer but as far as possible alternate with them.

The boxes must be strong and well made. In Florida they are commonly made of deal planks with galvanized iron nails. There are now in the principal citrus areas special machines for manufacturing them. For fruit packing Florida has good raw materials available, as timber is the State's principal industry. Each citrus box carries outside a ticket with the dimensions of the box in inches, the number of fruit contained and their dimensions. It must also bear the name, stamp and address both of the producer and of the packing house.

The greater part of the citrus crop of Florida is transported by railway, while the sea is the principal means of transport of the Californian crop. For railway transport, the boxes must be placed in the trucks in such a way as not to shift during transit, for on this depends the good condition of the fruit on arrival. Generally a 40 foot truck may hold 384 boxes and a 33 foot truck 360. In the latter there are ranged 6 rows of boxes across, 30 lengthwise and 2 vertically. It has at times been attempted to increase this by adding a third row vertically, but the results have not been satisfactory. Each row of boxes must be strongly held in position by lathes nailed to the ends of the boxes and to the side-walls of the trucks, to avoid shaking.

In Florida there has not, as in California, been any great developement of refrigerating plants, since the fruit is rarely stored. As soon as packed it is despatched to the marketing centres. In California, on the contrary, both the packing houses and the co-operative citrus selling agencies have refrigerating plants, where the fruit already packed is stored often for several months, and also refrigerating trucks for transport to long distances.

Trade.

The marketing of citrus by the producer is done in various ways: 1st, sale of the standing crop to shippers or speculators at a price fixed per box or for the whole crop; 2nd, direct delivery from the producers to the commission-agents in the various towns; 3rd, disposal to the co-operative selling agencies, such as the Florida Citrus Exchange, which deals with 60 per cent. of the production of that region.

Florida supplies 35 per cent. of the oranges consumed in the United States. The greater part of the crop is sold to the great urban centres of the northeast. The citrus areas of Florida are, on the average, only about a third of the distance of the Californian areas from the great consuming centres (New York, Boston, Philadelphia, Baltimore, Washington, Detroit, Chicago, etc.).

The marketing season for oranges in Florida begins in October and continues till June; for tangerines it is rather short (November-March). California and Arizona produce oranges all the year round (navels up to May-June and Valencias from June to November). The heaviest period of production is from November to July. The marketing season for grapefruit extends from September to August, i. e. more or less throughout the year, but the high season is from October to May. The United States import annually about 600,000 boxes of grapefruit from Puerto Rico, the heaviest month being September.

The production of lemons (at present about 300,000 metric tons), which is almost entirely centred in California, normally suffices for the internal requirements of the country. Nevertheless, the United States occasionally import lemons, particularly from Italy, which supplies 70 per cent. of the world demand.

The citrus exports of the United States are comparatively limited and average 7.5 per cent. of the total production of oranges and 4 per cent. of that of lemons. The principal countries importing citrus from the United States are Canada, which takes 50 per cent. of the total exports, and the United Kingdom 25 per cent.; the remainder goes to France, Sweden, Norway, the Netherlands, Belgium; etc. Recently exports to the United Kingdom have been increasing.

Canning and By-products.

The production and consumption of grapefruit was practically non-existent in the United States before the War, as it still is in Europe. Now production totals 30 million boxes a year, a good third of which is used in the canning industry. In Florida, of a production of 18 million boxes of grapefruit, 6.5 million are used in the canning industry, 1 million consumed locally and the remainder despatched to the northeast of the country.

The grapefruit canning industry in Texas is very recent, as is the crop itself. In fact, before 1934-35 this industry only absorbed 50 to 100,000 boxes of grapefruit a year; this rose to 606,000 in 1935-36, to 2,563,000 in 1936-37 and to 4.5 millions, or 40 per cent. of the total annual production in 1937-38. Texas supplies the great urban centres of the centre and southwest of the States.

In California and Arizona the quantity of grapefruit used in the canning industry is comparatively very small, but is increasing as production increases.

Several years ago producers spent 1.25 to 2 dollars per ton to get rid of oranges of poor quality or of waste products. Now in certain cases by-products constitute the basis or almost the sole means of disposal of the crop. The by-products of the enormous American citrus industry are used for the manufacture of orange juice, wine and vinegar, and also for stock feed. Various essential oils are obtained, also marmalade, ices, citric acid, lime citrate, lemon vinegar citric pectine, concentrated juices, etc.

Conclusion.

The development of citrus growing in the United States has been continuous since the beginning of this century, but has been particularly marked since the War. In view of the large number of young trees in the country, in the next few years there will be a natural increase in production, which should be stabilized at about 65 million boxes of oranges a year and 40 million boxes of grapefruit. This industry will still be able to prosper, owing to the excellent conditions in the areas of cultivation, the good co-operative systems organized for harvesting and marketing and the commercial methods adopted. At present citrus growing in the United States has become a commercialized and specialized crop, and has reached a high degree of perfection. But the natural increase of production will create two important problems: the intensification of the internal consumption of citrus fruit, the market for which is far from being saturated, and the search for new markets abroad, as well as an improved utilization of by-products.

As regards foreign markets, the United States may before long find itself in competition with the citrus regions of Central and South America, the production of which is also steadily increasing.

A. PASCUAL.

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THE EXTENT AND ECONOMIC IMPORTANCE OF BOVINE TUBERCULOSIS AND CONTAGIOUS ABORTION (BRUCELLOSIS) IN BULGARIA

The economic importance of these two diseases lies in the losses suffered by cattle owners through the death or prolonged illness of the cattle attacked. Both diseases are commoner in many other European countries than in Bulgaria, where the intensification of cropping and stockbreeding, the two main resources of the inhabitants, has only recently begun. Moreover, the numbers of cattle have greatly diminished during the past few years as a result of poor fodder crops, reductions in the area of pastureland, the high cost of fodder and an increase in the slaughter of cows and young cattle. The last census of livestock (December 31, 1934), showed that Bulgaria possessed at that time 1,497,624 cattle (45,7145 cows, 1,040,479 bullocks and young cattle) and 374,977 buffaloes (219,247 males and 155,730 females).

Tuberculosis.

In Bulgaria this disease is comparativeby rare.

There are three methods of diagnosing it: (1) by clinical examination of the living animal; (2) by examination of the slaughtered animal; (3) by tuberculin reaction. This last method, practised subcutaneously, is complicated and requires much time and work; it is consequently unsuited to mass research and attempts are being made to introduce the intradermic method. The first method is practised by Government veterinary surgeons especially on cows and female buffaloes whose milk is sold on the market; it is also adopted for cattle belonging to farms where the animals slaughtered have been found infected.

About 35,000 cattle annually are subjected to tuberculin tests. Results in 1937 showed that an average of 2.13 per cent. of animals treated were suffer-

ing from the disease. The percentage varies, however, in the several regions of the country; it was very low (0.2 per cent.) in the environs of Sofia and very high (12.1 per cent.) in the neighbourhood of Stara-Sagora. The 1938 percentages have not yet been established, as the data concerning tuberculin tests during the year have not all been received and worked out. No rise in the percentage is, however, anticipated.

In order to obtain a correct idea of the spread of bovine tuberculosis in Bulgaria during the past few years, a comparison must be made between statistics in this country and in some other European countries. In Germany, for instance, a study of animals of ascertained ages has shown that 25 per cent. of those slaughtered were infected; ZWICK and KLIMMER, however, consider that the percentage should be higher, varying from 50 to 80 per cent. According to BANG, 31 to 40 per cent. of cattle in Denmark show a positive reaction to tuberculin tests. In England, from observations made in slaughter-houses and from the results of subcutaneous tests made it was found that 30 per cent. of the cattle were infected. Similar results were obtained in France by NOCARD and LECLAINCHE.

The first studies made in Bulgaria were carried out in 1920 by DIKOFF, who found that between 0.5 and 0.6 per cent. of the cattle slaughtered were infected.

The use of subcutaneous tuberculin tests later showed that the percentage of infection was much higher among live animals, varying between 15.7 per cent. in 1928 and 6.65 per cent during the last few years. According to Prof. PAVLOFF, out of 9,541 cattle subjected to tests from 1925 to 1928, 12 per cent. gave positive results. From 1929 to 1933, 103,023 animals in all were subjected to subcutaneous tests and 3.92 per cent. were found to be infected (*).

According to the Central Institute of Veterinary Bacteriology, the results for the four years 1934-1937 are as follows:

Year	Cattle submitted to tuberculin test	Positive reaction %
1934.	78,228	3.90
1935.	37,311	2.30
1936.	36,971	2.10
1937.	31,064	2.12

The Sofia area is much richer in milch cows than other parts of the country, the numbers being 6081 cows and 1947 female buffaloes. Subcutaneous tuberculin tests have been made yearly and animals showing a positive reaction have been slaughtered, with a consequent reduction in the percentage of infected animals during the past four years. The same cannot, however, be said for the rest of the country, where systematic studies have not been carried out on a sufficiently large scale to justify such a conclusion.

(*) This total includes 11,263 female buffaloes; 1.12 per cent of which were found to be infected.

In order to identify infected cattle and protect the healthy animals, the Government veterinary surgeons apply the measures provided by law. Bovine tuberculosis is on the list of contagious diseases requiring the application of the measures provided by the law promulgated in 1924 (Article 67). Article 73 prohibits the importation of livestock or of raw animal products unless accompanied by a regular certificate of origin, ownership and condition, to be presented to the veterinary surgeon at the frontier. According to Article 79 imported cattle must be submitted to a tuberculin test. Article 81 prohibits the export of infected animals.

Articles 201, 202 and 203 describe the measures to be taken in the case of animals infected or presumed to be infected. The first of these articles orders the slaughter of all infected animals or of those showing a positive reaction to the tuberculin test. The second orders the slaughter of suspect animals at the nearest abattoir and under the supervision of a veterinary surgeon. Article 203 requires a test to be made on all cows and female buffaloes whose milk is for sale; when a case of tuberculosis is declared in a herd of selected cows, all the animals must be subjected to the test.

Only Government veterinary surgeons may make the tuberculin test.

Over and above the measures just described, the Veterinary Service prescribes that when slaughtered animals are found to be infected, all the other cattle on the farm of origin must be subjected to the test and animals showing a positive reaction must be slaughtered.

Contagious Abortion.

This disease among cows in Bulgaria is uncommon, and positive cases of abortion definitely attributable to it are very rare.

Only incomplete information is at present available in connection with this disease. In 1924 it was observed in a State herd of selected cows near Sofia. A blood test showed 94 certain cases, but as cases of abortion in Bulgaria are extremely rare, it is not possible to establish a percentage. According to PFENNINGER, and KRUPSKI, on the other hand, 20 per cent. of the cows slaughtered in Switzerland are infected with the Bang bacillus. SCHNUBER believes that an average of 30 per cent. of the cows in Germany suffer from the disease, while TELLER and ZWICK estimate that it causes the loss of hundreds of millions of gold marks annually.

In any case, it is much less widespread in Bulgaria than elsewhere. It was introduced as a result of the importation of selected stock. The fact that the first case was not observed until 1924 explains why the 1924 law concerning the Veterinary Sanitary Service does not prescribe any special measures in connection with this disease.

Prof. ST. ANGELOFF's valuable studies on contagious abortion show that in Bulgaria the disease is localized in certain regions and is only beginning to develop.

The local veterinary surgeon must immediately be notified of the appearance of the disease.

All infected animals must be isolated and put to graze separately. They can only be sold for slaughter, and infected bulls must not be used for breeding. Farms are considered as healthy if the animals show three consecutive negative reactions to serum tests made at intervals of six months, and if the stables are carefully disinfected.

Neither live nor dead cattle may be vaccinated with the Bang bacillus in Bulgaria. Farmers are advised to have a serum test made before purchasing stock.

Only eight cases of Maltese fever have been notified in Bulgaria up to the present.

In spite of their great economic importance in agriculture and stockbreeding, these two diseases have thus not had a serious influence on milk and meat production in Bulgaria, since they have not affected cattle to the same extent as in other countries.

The annual milk production in Bulgaria is estimated at 706 million litres, 550 million being cows' milk and 156 million buffalo milk. 4,143,033 litres of the former and 3,367,302 litres of the latter were processed in 1936.

The town abattoirs delivered 21,504,409 kg. of meat in 1936, the product of the slaughter of 153,179 cattle and 47,347 buffaloes. Between 1932 and 1936 Bulgaria exported a yearly average of 10,702 cattle and buffaloes, valued at 34,434,000 levas.

It cannot be denied that the two diseases under consideration are a menace to the public health. This is true, however, to a less serious extent in Bulgaria than elsewhere, partly because the diseases are not so widespread and partly because the population does not drink raw milk. In the country districts the inhabitants only take butter with their tea occasionally, while in the towns where butter and raw milk are used, the people are not open to infection because the animals supplying these two products are constantly under official supervision. The population is therefore protected from tubercular infection.

To prevent the spread of the above diseases among cattle and to minimize the losses incurred by stockbreeders, the State Veterinary Service enforces the very strict health regulations which have been described above; the results obtained from these measures have been both economic and hygienic.

In conclusion we may mention the compensation paid by the Bulgarian Government to owners of infected animals which have had to be slaughtered; the total yearly expenditure under this head is about two million levas. From 1934 to 1938 the State spent an average of 1,861,268 levas yearly on the slaughter of 1,316 infected cows and female buffaloes.

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THE ORGANIZATION AND ENCOURAGEMENT OF HORSE-BREEDING IN ROMANIA (1)

I. — History of the Organization of Horse-breeding.

The question of the administrative organization of horse-breeding was raised by Mihail KOGĂLNICEANU, the great Romanian statesman, in a circular letter addressed to the prefects on November 16, 1861. This document set forth the principle that the State, as representing the Nation, should take active measures to improve the breeds of horses as a means of developing the wealth of the country and the national defence. The measures considered necessary for attaining this object were described — purchase of thoroughbred stallions, award of prizes for good sires, etc. — and reference was made to the dangers threatening the recently united principalities unless something were done at once to improve the nation's stock of horses.

The first national stud was organized at Reviga, Copuzu and Odaia Bărağanului in 1864, with 120 fillies from the studs at the monasteries of Caldaruşani Pasărea and Cernica (Department of Ilfov) and two Percheron stud stallions imported from France. This stud had only a brief existence, and another stud, founded in its place at Pascani (Ilfov) in 1865 with English thoroughbreds, also did not last long.

Measures taken by the Ministry of the Interior, as responsible for agricultural matters, were of little avail and after 1872 the question of the improvement of equine stock was transferred to the Ministry of War, whose action was confined to direct methods.

A law concerning breeding and the improvement of the country's stock of horses was promulgated in 1874 the War Ministry was entrusted with the application of this law in collaboration with the veterinary surgeons. The Nucet (Departement of Dâmbovița) stud was established, and transferred in 1895 to Cislău (Departement of Buzău).

In the same year the War Ministry established five stallion depots for public service, the first of the kind to be set up in Romania; these depots were located as follows: Craiova with 28 stallions; Ploesti, with 31 stallions; Bucarest with 27 stallions; Slobozia with 46 stallions and one in the Dobrudja with 10 stallions. According to breed, these 142 stallions were divided as follows:

- 44 English thoroughbreds
- 6 Arab purebreds
- 4 Anglo-Arab thoroughbreds
- 88 halfbred English and Anglo-Arab stallions.

(1) This article is a continuation of *The Organisation and Encouragement of Horse-Breeding*, part of which has already appeared in this *Bulletin* (July 1937, page 250, January 1938, page 12 and October 1938, page 396). It has been prepared mainly on the basis of a report issued by the Romanian Ministry of Agriculture and Crown Lands and has been revised by the Ministry.

These stallions were distributed among the cavalry regiments in spring, where they formed public service stations with 3 or 4 stallions each. During this early period about 13,000 mares were served yearly.

After 1880 the task of improving the stock of horses was transferred to the Ministry of Agriculture and Industry, which till then had been merely a department of the Ministry of Finance.

Nicolas FLEVA, Minister of Agriculture and Crown Lands, established a stallion depot at Anadolkiöi in 1899 for the purpose of improving the Dobrudja stock. At the same time 27 Anglo-Arab stallions were imported from the district of Tarbes in France. In 1904, another Minister of Agriculture, Vasile LAȘCĂR, was responsible for law concerning associations in rural communes, article 166 of which provided for the purchase of reproducers and for the establishment of communal stables for reproducers.

In 1908, the Minister of Agriculture and Crown Lands, A. CARP, in agreement with General AVERUSCU, the War Minister, had a law passed transferring the Cislău stud to the control of his own Ministry.

Later, in 1909, Prof. Al. LOCUSTEANU, Director of the Veterinary College, - who had for a long time seen that such a service was necessary - succeeded in arranging for the establishment of an Animal Husbandry Service entrusted with the breeding and improvement of domestic animals. Later, under the direction of the veterinary surgeon, Dr. MANTU, it became the Animal Husbandry Department of the Ministry of Agriculture.

The stallion depots at Grași in the department of Neamțu and at Slobozia, in the department of Țalomița, were established in 1910 and 1912 respectively.

The Grași depot had 168 stallions by 1916; those at Anadolkiöi and Slobozia 173 and 22 respectively. There were therefore in all 363 stallions, of the following breeds: English thoroughbreds, Arab purebreds, Anglo-Arabs, English halfbreds, Arab halfbreds, Percherons, etc.

The State stallion service began activities in 1900 with 8 stallions serving 55 mares; in 1915 the stock had increased to 363 stallions serving 14,638 mares.

These figures illustrate the satisfactory results of the Ministry of Agriculture's policy, the remount service being supplied exclusively with horses bred in the country.

From a report by Dr. ANGELESCU, veterinary colonel, it appears that between November 1, 1914 and September 1, 1915, 532 young horses were bred for the cavalry and 1847 for the artillery; 15 per cent. of the total of 2,379 head came from the big landowners and 85 per cent. from small landowners.

The Ministry of Agriculture had also organized livestock shows as an indirect means of intervention; the first of these were held at Jassy and Bucarest in 1863 and 1864. Later, such events became frequent throughout the country.

Excellent results were obtained from the showing of colts sired by State depot stallions; these shows were organized during the period 1912-1916.

In order to encourage the breeding of remounts, the Minister of Agriculture, A. CONSTANTINESCU, instituted a bonus of from 100 to 150 lei for every horse bred in the country for army use.

From 1916 to 1918 the war interrupted all activities for the encouragement of horse-breeding, but they were vigorously resumed at the close of hostilities.

In 1919 I. G. DUCA, Minister of Agriculture, converted the Animal Husbandry Service into a General Directorate of Animal Husbandry subdivided into two sections: the Animal Husbandry Service and the Veterinary Health Service.

There has been steady progress ever since that time. During 1919, the Anadolkiol (Constanța), Grași (Neamț), and Slobozia (Ialomița) depots, whose stock had been depleted by the war, were supplied with new stallions.

The Romanian State, as successor to the Austro-Hungarian Monarchy, purchased its share of the Radautz stud, and established the Arab and Huzule stud at Rădăuți; at that time this establishment consisted of the general Administration and the stallion depot in the town of Rădăuți, an Arab stud near the town and a stud of Huzule horses in the Lucina mountains about 105 kilometres west of the town, in the Bucovina Carpathians.

The Bonțida-Cluj stud was also established in 1919, and was run by the Governing Council of Transylvania until 1921, when it was transferred to the control of the General Directorate of Animal Husbandry at the Ministry of Agriculture and Crown Lands.

The following studs were established in 1920: 1. the Rusețu (Braila) stud and stallion depot, housed in the buildings belonging to the former Crown Lands Department, to which were added a part of the Macovei-Padina estate (Departement of Buzeu) with its premises. This stud was intended for breeding horses of the Gidran stock; 2. the stud and stallion depot at Sâmbăta de Jos (Departement of Făgăraș) housed in the buildings of the former Hungarian Fogaras stud; 3. the Homorod stallion depot (Departement of Târnava-Mare) and 4. the Brebeni stallion depot (Departement of Olt).

The Turnu Severin and Fitești stallion depots (Departement of Hotin) were created in 1921 and 1922 respectively. In the same year, the provincial Animal Husbandry Commissions were instituted, under Ministerial Decree No. 40,000, May 5, 1922.

In 1923 the stud and stallion depot at Pădureni was created for breeding horses of the large Nonius type. This stud had originally been situated at Rușețu.

Also in 1923, by Ministerial Decree No. 29,999 the Ministry approved the creation of departmental funds for animal husbandry purposes and gave the animal husbandry Commissions the right to levy special taxes called "animal husbandry taxes". The departements were thus enabled to manage their own budgets, amounting to a grand total of 60,526,444 lei and to carry out useful work in this field, building communal stables for stallions, organizing shows of livestock, purchasing stallions, establishing public service stations, etc.

In 1924, Al. CONSTANTINESCU, Minister of Agriculture, promoted a bill for the opening of an extraordinary reimbursable credit; the bill was passed and published in the *Official Gazette*, No. 67, of March 26, 1924. The appropriation of 100,000,000 lei thus granted served to given loans without interest to the Animal Husbandry Commissions for the purchase of reproducers for the communes.

In order to encourage horse-breeding on the basis of a uniform programme, the General Directorate for Animal Husbandry and Veterinary Hygiene allowed the passage of a law concerning the breeding, the improvement and the protection of the health of livestock, which was published in the *Official Gazette* No. 3 in January, 1926.

Pursuant to this law, the General Directorate of Animal Husbandry established the National Animal Husbandry Institute for the study of general problems of animal husbandry, the organization and control of breeding, the keeping of stud and herd books by the unions formed by the breeders of domestic animals, etc. After a careful and documented study of the subject, the Directorate delimited the various areas for breeding each different race of domestic animal.

Under the terms of the 1926 law, the General Directorate of Animal Husbandry also created a central animal husbandry fund obtained by a levy on totalisator receipts. This fund was utilized for the purchase of stallions required for public service.

Agricultural Chambers were also instituted in 1926, including in the sphere of activity the Animal Husbandry Commissions.

The Mangalia stud was established in 1929 by the Minister of Agriculture, C. ARGETOIANU and the Chişinau (Bessarabia) depot in 1930.

This new organization of horse-breeding in Romania and the action of the General Directorate of Animal Husbandry have made great progress possible and led to the present prosperous position.

II. — Present State of Horse-breeding Organization.

Legislative provisions regulating horse-breeding and its encouragement are contained in the law on horse-breeding (*Official Gazette* No. 3, January 3, 1926), incorporated in the law of 1937 on the organisation and encouragement of agriculture (promulgated by Royal Decree No. 1361 of 1937 and published in the *Official Gazette*, No. 67, March 27, 1937) and in the regulations annexed to that law (promulgated by Royal Decree No. 3426, 1937 and published in the *Official Gazette*, No. 236, Octobre 12, 1937).

Under the above measures, the Ministry of Agriculture and Crown Lands is entrusted with the task of encouraging the breeding and improvement of domestic animals, supervising their health and commercializing and industrializing the breeding and production of livestock. The Directorate of Animal Husbandry and Veterinary Hygiene, attached to the above Ministry, is the body which carries out all the activities undertaken by the State and which, through its technical and supervisory organs – run by veterinary surgeons – directs and controls the nation's equine production.

The Ministry is assisted in its work by the Higher Council for Animal Husbandry, which deals with all matters connected with breeding, improvement of the various breeds, and industrialization of livestock and animal products and with the administration of the central animal husbandry fund. The law provides that both horse-breeders and the military authorities shall be duly represented on the Council.

The law on stock-breeding divides the national territory into breeding areas, for each of which the races to be bred are carefully specified; the Ministry of Agriculture and Crown Lands only encourages those breeds which it considers suitable to each region. When defining these breeding areas, account was taken both of the actual situation and of the future programme, but since these factors may alter as the result of economic evolution, these areas are not more than a convenient means of directing stockbreeding development.

State Stallion Service and Breeding.

The most important measure for the improvement of the breed of horses consists in making State stallions available for breeding purposes. A certain number of these stallions are bred in the national studs, others are purchased from private breeders. State stallions are kept as a rule in the State depots and are sent to the service stations during the breeding season. These latter stations are of two descriptions: (1) public service stations where mares belonging to owners in the district are served for a small fee; (2) private service stations: horse-breeders owning large numbers of mares can ask for a State stallion to be placed at their disposal; the mares belonging to this owner are served first, after which (as far as possible and within a maximum fixed limit) mares belonging to other breeders are also served.

The State owns 6 national studs, where a proportion of the State stallions are bred: Rădăuți (including Lucina) where Arab stallions, halfbred Arabs and Huzule horses are bred; Bonțida, where Furioso-North Star and Nonius stallions are bred; Rușețu for Gidran stallions; Sâmbăta de Jos for breeding Lipizzaner stallions; Pădureni, where Nonius stallions are bred and Mangalia, breeding purebred and halfbred Arab stallions.

The Rușețu stud breeds donkeys as well as horses.

The purpose of the studs is to supply State depots with the best sires, to diffuse the principles of rational horse-breeding as widely as possible and to give breeders the possibility of producing a sufficient number of horses to meet the requirements of the army and agriculture. Broadly speaking, every department should have its own stallion depot, either direct or through the Animal Husbandry Section of the Chamber of Agriculture.

The Romanian Government at present owns 13 stallion depots (see list on pp. 223-225).

(a) *State Studs:* (1).

1. — *The Rădăuți State Stud* produces a thoroughbred Arab horse, a halfbred Arab and a mountain horse known as the Huzule, bred at Lucina, at a distance of 105 km. from the central establishment, in the Bucovina Carpathians.

(1) The figures given concerning numbers of horses are the very latest available, having been supplied to the Institute by the Ministry of Agriculture and Crown Lands on May 17, 1939.

The stud estate covers an area of 2,229 hectares, 200 hectares of which are pasturage, 461 hectares natural meadows, 166 hectares artificial meadows, 723 hectares arable land and 1,400 hectares mountain pastures at Lucina.

The establishment as it stands today was installed in 1919 in the buildings belonging to the former Imperial Austrian stud ⁽¹⁾.

The original strength - in 1919 - of the present stud was 5 stud stallions, 30 brood mares, 30 colts and fillies belonging to the Arab stud; and 2 stud stallions and 4 Huzule mares, which formed a nucleus for reconstitution of the Lucina stud of mountain horses.

The stud is at present composed as follows: 11 stud stallions (3 Arab purebreds, 4 Arab halfbreds, and 4 Huzules);

175 brood mares (1 thoroughbred English mare, 17 purebred Arab mares, 3 Anglo-Arabs, 80 halfbred Arabs and 74 Huzules);

205 colts, 1, 2, 3 and 4 year olds (15 English thoroughbreds, 17 Arab purebreds, 94 Arab halfbreds, 93 Huzules and 1 Anglo-Arab);

164 fillies, 1, 2, 3 and 4 year olds (11 Arab purebreds, 75 Arab halfbreds, 78 Huzules).

During the first ten years after its establishment (1919-1929), the Arab stud produced 243 horses (not including losses from death and elimination); these were divided as follows: 1 stud stallion, 88 mares and 54 stallions distributed among the depots. The numbers produced by the Huzule stud during the same period were 3 stud stallions, 53 brood mares and 42 stallions distributed among the State depots.

A stallion depot for public service is also attached to the stud (see description on page 223).

Simmental cows are also bred on the stud estate (12 head) as well as Turkana sheep (877 head), Large White pigs (18 head), while 144 draft animals are kept for work at the establishment and for cultivating the land belonging to it.

2. - *The State Stud at Bonțida*, near Cluj in Transylvania, produces horses of the Nonius Anglo-Norman breed and a halfbred English horse, of the Furioso-North Star type ⁽²⁾.

The estate covers an area of 2,054 hectares, comprising 748 hectares of pastureland, 403 hectares of natural meadows, 115 hectares of artificial meadows and 690 hectares of arable land.

⁽¹⁾ The Austrian stud was founded in 1792 with native horses and horses from Russia, the Don plateau, the Caucasus and Persia; the stallions used were sires imported from Turkey, some belonging to the Lipizza breed and a Barb. Later Arab stallions were used in this Imperial stud and uniformity of type was achieved.

Horse-breeding was organized at Lucina by the Austrian Government in 1856 when the first animals - 2 stallions and a mare - were purchased in the South Transylvanian mountains.

⁽²⁾ The breeds known as Furioso-North Star and Nonius come from the Royal Hungarian stud at Mezöhegyes.

The English halfbred "Furioso" is descended from the English thoroughbred *Furioso* purchased in 1841; the English halfbred "North Star" originated in the English thoroughbred sire of that name imported from England in 1852. The breeding of the "Nonius" began when the stallion *Nonius Senior* was brought to Mezöhegyes in 1815 from the French stud at Rozières.

The stud was established in 1919 on the premises of the former Hungarian remount station and it was run by the Governing Council of Transylvania until it was transferred in 1921 to the General Directorate of Animal Husbandry attached to the Ministry of Agriculture and Crown Lands.

When founded in 1919 the stud was composed of 14 stud stallions, 156 brood mares, 104 colts and fillies (1, 2, 3 and 4 year olds), all Nonius, Gidrans and Furioso-North Stars and almost all from the Royal Hungarian stud at Mezöhegyes, *i. e.* from the original stock of these breeds.

To-day the stud comprises the following stock: 12 stud stallions (2 English thoroughbreds, 4 Furioso-North Star and 6 Nonius stallions);

102 brood mares (11 English thoroughbreds, 36 Furioso-North Star and 55 Nonius mares);

102 colts, 1, 2, 3 and 4 year olds, (9 English thoroughbreds, 44 belonging to the Furioso-North Star and 49 to Nonius stock);

125 fillies, 1, 2, 3 and 4 year-olds (6 English thoroughbreds, 51 of Furioso-North Star and 68 of Nonius stock).

During the first ten years after its establishment (1919-1929) this stud produced 2 stud stallions, 282 State stallions for the depots and 127 brood mares, without counting animals which died or were eliminated.

The establishment also runs a stallion depot for public service (see description on page 224).

Simmenthal cattle are also bred on the estate (47 head), as well as the black and white varieties of Turkana sheep (432 head), Mangalitza and Large White pigs (29 head), Rhode Island and Plymouth Rock fowls (150 head), while 117 draft animals are kept for various types of work in the establishment and on the estate.

3. - *The State Stud at Rușești (Braila)* produces an Anglo-Arab horse known as Gidran ⁽¹⁾.

The estate covers an area of 2,270 hectares, 252 hectares of natural meadows, 120 hectares of artificial meadows and 1,878 of cultivated land.

The Rușești stud was founded in 1920 with Nonius stock, but in 1924 this was transferred to Parța, near Timișoara and replaced by the Gidran stud from Răudăți. The stud is housed in the buildings of the old Crown estate, to which a part of the Macovei-Padina estate (Departement of Buzău) has been added with its premises. Breeding commenced with 2 stud stallions, 69 brood mares and 48 colts and fillies. The actual stock now numbers 9 stud stallions (2 half-bred Arabs, 5 Gidran and 2 American trotters);

82 brood mares (3 halfbred Arabs, 71 Gidran and 8 American trotters);

84 colts (2 Arabs, 74 Gidran and 8 American trotters);

77 fillies (2 Arabs, 70 Gidran and 5 American trotters).

(1) The Gidran breed — Hungarian Anglo-Arab — belonged to the Royal Hungarian stud at Mezöhegyes and originated in the Arab thoroughbred *Gidran Senior* imported from Arabia in 1815. At first only pure bred Arab stallions were used in breeding the Gidran horse, but after 1860 the stock was crossed with English thoroughbreds in order to improve the breed; since then the Gidran stock has been officially known as an Anglo-Arab breed.

During its first decade, this stud produced 3 stud stallions, 111 brood mares and 108 stallions for the depots, not including losses from death or elimination.

The establishment also breeds Poitou donkeys, of which there are 15 in the stud at present.

A stallion depot for public service is annexed to the stud (see description on page 224).

Simmenthal cows are also raised on the estate (13 head), as well as Karnabat sheep (341 head) and Mangalitza and Large White pigs; are kept 140 draft animals for work in connection with the stud and on its land.

4. - *The Sâmbăta de Jos (Făgăraş) State Stud* produces a Lipizzaner horse⁽¹⁾.

The estate covers an area of 498 hectares, 64 hectares being pastureland, 37 hectares natural meadows, 109 hectares artificial meadows and 156 hectares arable land.

In 1920 the stud was installed in the buildings belonging to the former Hungarian Fogaras stud, founded by the Royal Hungarian Government in 1875 with Lipizzaner stock from the Mezőhegyes stud (where breeding of these horses commenced in 1860) and also with animals imported directly from Lipizza. The present stud began activities in 1920 with 3 stallions and 22 mares belonging to the Lipizzaner breed.

Present stock is as follows: 8 stud stallions, 84 brood mares, 84 1, 2, 3 and 4 year old colts and 99 1, 2, 3 and 4 year old fillies, all Lipizzaner.

From 1921 to 1928 the stud produced 64 brood mares and 56 State stallions distributed among the depots.

A depot for public service is annexed to the stud (see description on page 224).

Merino sheep (86 head) are also raised on the estate, as well as Large White pigs (15 head) and Rhode Island poultry (43 head) whilst 26 draft animals are kept for use on the stud and farm.

5. - *The State Stud at Pădureni* (the former Parța Stud, near Timișoara in the Banat) produces an Anglo-Norman horse known as the Large Nonius⁽²⁾.

The estate covers an area of 1,460 hectares, comprising 159 hectares of pasture, 104 hectares of natural meadows, 139 hectares of artificial meadows and 1,218 hectares of arable land.

(1) The Lipizz breed originated at the Royal and Imperial Stud belonging to the Austrian Court at Lipizza in the Carso mountains and founded by the Archduke Charles in 1580. The initial stock consisted of Spanish stallions and Andalusian mares; later oriental blood was added to the Spanish and Neapolitan strains. Thus the Lipizza breed was the result of crossing these various strains and re-crossing them with the local horse.

(2) In the Royal Hungarian Stud at Mezőhegyes, where they originated, the Nonius horses are divided into two groups: in the first group of large animals (Large Nonius) are included the horses measuring 168 centimetres at the withers, measured with the tape; the other group comprises the smaller Nonius horses (Small Nonius). The horses in the former group are rarely more than 174 centimetres in height; in the latter group they are seldom less than 160 centimetres.

The breeding of large Nonius' was began at Rușețu in the autumn of 1919. The Pădureni stud was founded in 1923 and the stock transferred there from Rușețu. Breeding commenced with 5 stud stallions, 82 brood mares, and 49 1, 2, 3 and 4 year old colts and fillies.

Stock at present is: 4 stud stallions, 78 brood mares, 78 1, 2, 3 and 4 year old colts and 65 1, 2, 3 and 4 year old fillies, all belonging to the Nonius breed.

During the first ten years (1919-1929) the stud produced: 1 stud stallion, 99 brood mares and 121 State stallions distributed among the State depots.

A stallion depot for public service station is annexed to the stud (see description on page 224).

The establishment also breeds black Ratzka sheep (567 head), Mangalitza pigs (11 head) and owns 102 draft animals for use on the stud and farm.

6. - *The State Stud at Mangalia* produces purebred and halfbred Arabs.

The estate covers an area of 1,587 hectares, comprising 144 hectares of grazing land, 60 hectares of natural meadows, 30 hectares of artificial meadows and 1,300 hectares of arable land.

The stud was founded in 1929 when C. ARGETOIANU was Minister of Agriculture, and is an entirely new establishment. The stock was brought from the stud formerly run by the Ministry of War and installed at the Jigalia (Ialomița) remount depot. When the stud was established the stock amounted to 115 animals for breeding purposes, including 3 stud stallions.

Present stock is as follows:

purebred Arabs: 3 stud stallions, 12 mares, 15 fillies (1, 2, 3 and early olds), and 11 colts (1, 2, 3 and 4 year olds);

halfbred Arabs: 2 stud stallions, 56 brood mares, 61 fillies (1, 2, 3 and 4 year olds) and 64 colts (1, 2, 3 and 4 year olds).

The establishment also raises Karnabat sheep on the estate (120 head), and owns 107 draft animals for use on the stud and farm.

(b) *Stallion Depots* ⁽¹⁾.

There are 13 stallion depots in Romania, 5 of which are annexed to State studs:—

1. - *The Rădăuți Stallion Depot* has 111 stallions 2 English thoroughbreds, 13 Arab purebreds, 4 English halfbreds, 65 Arab halfbreds, 1 Anglo-Arab and 35 Huzules.

In 1937 service by stallions belonging to this station was as follows: 3,751 mares served at 46 public service stations, and 427 mares served at 18 private service stations, making a total of 4,178 mares served. The Rădăuți depot serves the following departements: Rădăuți, Storojineț, Cernăuți, Suceava, and Câmpu-Lung.

(1) The figures given concerning numbers of horses are the latest, having been supplied to the Institute by the Ministry of Agriculture on May 17, 1939.

2. - *The Bontida Stallion Depot* has been operating for several years in connection with the stud of the same name. The present stock comprises 117 stallions (5 English thoroughbreds, 13 English halfbreds, 1 Arab, 35 Furioso-North Star, 59 Nonius, 3 Lipizzaner and 1 Ardennais).

Service given in 1937 was as follows: 3,581 mares served (3,295 in 40 public service stations and 286 in private service stations). This depot serves the departements of Salaj, Bihor, Satu-Mare, Someş and Năsăud.

3. - *The Ruşefu Stallion Depot* has 62 stallions (2 English thoroughbreds, 1 Arab purebred, 3 English halfbreds, 3 Arab halfbreds, 1 Lipizzaner, 8 trotters, 43 Gidrans and 1 Nonius).

Service given in 1937 was as follows: 3,254 mares served (3,152 in 33 public service stations and 102 in 5 private service stations). This depot serves the departements of Braila, Râmnicul-Sarat, Covurlui, Putna, Tecuci and Tutova.

4. - *The Sâmbăta de Jos (Făgăraş) Stallion Depot* owns 74 Lipizzaner stallions. During 1937, 79 stallions belonging to this depot served 2350 mares (2097 in 48 public service stations and 253 in 10 private service stations). This depot serves the departements of Făgăraş, Alba and Sibiu.

5. - *The Pădureni Stallion Depot* now owns 191 stallions (3 English thoroughbreds, 6 Furioso-North Star, 175 Nonius, 2 thoroughbred and 5 halfbred Ardennais).

Service in 1937 was as follows: 7,750 mares served (7,571 in 66 public service stations and 179 in 5 private service stations). This depot serves the departements of Timiş and Arad.

Besides the stallion depots annexed to the studs, there are 8 others: 3 of these (Anadalkioi, Graşi and Slobozia) existed before the war, while the remainder were established after 1920.

6. - *The Anadalkioi (Constanţa) Stallion Depot* has 127 stallions (15 English thoroughbreds, 7 Arab purebreds, 2 Anglo-Arab thoroughbreds, 8 English halfbreds, 90 Arab halfbreds, 1 Lipizzaner, 1 trotter, 2 Gidrans and 1 Nonius).

Service in 1937 was as follows: 5,167 mares served (4,960 in 49 public service stations and 207 in 10 private service stations). This depot serves the departements of Constanţa, Tulcea, Caliacra and Duroştor.

7. - *The Graşi Stallion Depot* has 110 stallions (4 English thoroughbreds, 1 Arab purebred, 3 Anglo-Arabs, 8 English halfbreds, 55 Arab halfbreds, 10 Huzules, 23 Gidrans, 2 Nonius and 4 Ardennais).

Service in 1937 was as follows: 4,325 mares served (3,974 in 41 public service stations, and 351 in 11 private service stations). This depot serves the departements of Botoşani, Bacău, Dorohoi, Baia, Iaşi, Neamţ, Roman, Falciu and Vaslui.

8. - *The Slobozia Stallion Depot* has 180 stallions (52 English thoroughbreds, 37 English halfbreds, 3 Arab halfbreds, 1 Huzule, 7 trotters, 46 Gidrans, 19 Nonius, 8 Ardennais, 5 Ardennais halfbreds, 1 Anglo-Arab and 1 Oldenburg).

During 1937, 8,042 mares were served from this depot (7,753 in 87 public service stations and 289 in 15 private service stations). This depot serves the departements of Ialomița, Ilfov, Vlașca, Teleorman, Argeș, Muscel, Dâmbovița and Prahova.

This stallion depot also rears two varieties of the Tzigaiia-Bucalaia breed of sheep: the black-faced and the red-faced varieties (18 stud rams and 626 ewes).

9. - *The Homorod (Târnava-Mare) Stallion Depot*, has 193 stallions (8 English thoroughbreds, 31 English halfbreds, 3 Arab halfbreds, 23 Lipizzaner, 32 Furioso-North Star, 95 Nonius and 1 Oldenburg stallions).

In 1937, 7,814 mares were served in 116 public service stations and 413 in 9 private service stations, amounting in all to 8,227 mares served. This depot serves the departements of Târnava-Mare, Târnava Mica, Turda, Făgăras, Brașov, Trei-Scaune, Odorhei, Ciuc, Mureș and Sibiu.

10. - *The Brebeni (Olt), Stallion Depot* has 85 stallions (9 English thoroughbreds, 41 English halfbreds, 3 Arabs, 1 Anglo-Arab, 3 Huzule, 4 Lipizzaner, 1 trotter, 2 Gidrans, 7 Nonius, 5 Ardennais and 9 halfbred Ardennais stallions).

During 1937, 2,213 mares were served in 67 public service stations. This depot serves the departements of Dolj, Romanați, Olt, Argeș, Teleorman, Vâlcea, Gorj and Muscel.

11. - *The Turnu-Severin Stallion Depot* has 110 stallions (6 English thoroughbreds, 16 English halfbreds, 15 Arab halfbreds, 1 Anglo-Arab, 8 Huzule, 9 Lipizzaner, 14 Furioso-North Star, and 25 Nonius as well as 3 Ardennais thoroughbreds and 1 Ardennais halfbred).

During 1937, 4,291 mares were served in 46 public service stations and 10 in one private station. This depot serves the departements of Mehedinți, Severin, Hunedoara and Arad.

12. - *The Fitești (Hotin) Stallion Depot*, has 75 stallions (1 English thoroughbred, 12 English halfbreds, 29 Arab halfbreds, 11 trotters, 15 Gidran, 5 Nonius and 2 Oldenburg stallions).

During 1937, 3,040 mares were served in 35 public service stations and 64 in 2 private service stations, a total of 3,104 mares. This depot serves the departements of Hotin, Sorocea and Bălți.

13. - *The Chișinău (Bessarabia) Stallion Depot* has 44 stallions (1 English thoroughbred, 3 English halfbreds, 39 trotters and 1 halfbred Ardennais stallion).

During 1937, 2,207 mares were served (2,153 in 37 public service stations and 54 in 7 private service stations). This depot serves the departements of Lăpușna, Orhei, Tighina, Cetatea Albă and Ismail.

Private Stallion Service.

Besides the public service stations there are also many private service stations served by stallions belonging to private owners. Permits must be obtained from a Commission of experts before these stallions can be used for public

service. Stallions refused a licence by the Commissions of Experts are castrated at the owner's expense if there is no other way of preventing their being used for public service.

The following table gives the numbers of State and authorized private-owned stallions utilized for service during the year 1936-37. The figures show that out of a total of 4,738 stallions used, 1,539 were State stallions from the depots, while 3,199 were authorized private-owned stallions.

Number of stallions belonging to stallion depots and of authorized stallions utilized for service in the year 1936-37.

Breeds	Number of Stallions		Total
	Belonging to stallion depots	Belonging to private owners and authorized for service	
English thoroughbreds	116	14	130
Arab purebreds	18	78	96
Anglo-Arab thoroughbreds	6	—	6
English halfbreds	188	423	611
Arab halfbreds	249	196	445
Anglo-Arab halfbreds	5	—	5
Furioso-North Star	79	—	79
Gidran	161	133	294
Lipizzaner	371	419	790
Nonius	133	161	294
Oldenburg	4	5	9
Trotters	105	44	149
Orloff-American crossbreds	—	16	16
Huzules	80	224	304
Ardennais thoroughbreds	—	42	42
Ardennais halfbreds	22	—	22
Pintzgau (Mura)	2	130	132
Native horses	—	267	267
German settlers' horses in Southern Bessarabia	—	467	467
Dobrudja horses	—	580	580
Total	1,539	3,199	4,738

III. — Other Provisions for the Encouragement of Horse-breeding.

(a) State Subsidies.

To increase the numbers and improve the quality of stock, the State gives subsidies every year for horse-breeding. The principal subsidies are: (a) bonuses for the maintenance of stud stallions and brood mares; (b) bonuses for horses sold to the army (remount service); (c) subsidies for studs with a stock of at least 10 brood mares.

The maintenance bonuses and subsidies under (a) and (c) are awarded by the Ministry of Agriculture (Directorate of Animal Husbandry Services)—if the Animal Husbandry Sub-Commissions express a favourable opinion—to breeders owning

authorized stallions or good brood mares of known origin, capable of reproduction and of transmitting their good qualities to their offspring.

At the beginning of the year each Animal Husbandry Sub-Commission submits for the approval of the Ministry an estimate of the sum necessary for these subsidies.

Besides these subsidies, the State gives others to the breeding unions and awards prizes and diplomas at the shows. Horse-breeders are also assisted by the purchase at a good price of stallions exhibited at the shows.

(b) *Associations.*

Through the departmental Chambers of Agriculture, the Ministry of Agriculture encourages the formation of local societies and unions for horse-breeding, under a standard statute.

Under the terms of the law on cooperation, these local associations may federate by departements or by regions; they work on the lines laid down by the Chambers of Agriculture and enjoy all the advantages and rights foreseen by the law on cooperation.

Besides the local societies and unions already in existence, the heads of the horse-breeding establishments (studs and stallion depots) sometimes form other associations under the auspices of the National Animal Husbandry Institute.

Among the numerous horse-breeding associations in Romania, mention should be made of those operating in the capital: the Jockey Club – the Society for Trotting Horses – The Association of Breeders of English Thoroughbreds – The Association of Breeders of Trotters – Some of the associations operating in the provinces are for general purposes, while others have been created for the purpose of encouraging a given breed or type of horse. Others, again, encourage horse sports, and still others assist their members in the field of commerce.

(c) *The Stud-Book System.*

The Stud-Book of thoroughbred horses is kept by the “Jockey Club”, with headquarters at Bucarest. The Stud-Book for halfbreeds is kept by the “Society for the encouragement of the breeding of halfbreeds”, with headquarters at Braila; the Trotter Stud-Book is kept by the “National Society for Trotting Horses”.

I. M.

MISCELLANEOUS INFORMATION

THE ACTION AND USE OF COLCHICINE IN THE PRODUCTION OF POLYPLOID PLANTS. — The discovery of the action of the drug colchicine on nuclear division, making it the most reliable agent yet used in the production of polyploid plants, has excited great interest even among laymen and is of importance to those working on the cytology or genetics of plants.

The Imperial Bureau of Plant Breeding and Genetics, of Cambridge, has issued a bulletin on the subject, summarizing the already fairly extensive literature. This bulletin begins by explaining the chromosome doubling; next a detailed account of the action of colchicine on mitosis and meiosis is given, followed by summaries of the results obtained from the use of colchicine for producing polyploid plants. The action and use

of acenaphthene, which Russian workers have shown to be a similar agent to colchicine, are also described. Particular attention has been paid throughout to treatments, and dosages and some recommendations are given which should be helpful to those contemplating the production of polyploids. All the literature that appeared up to the end of January 1939 is included and listed in a bibliography of 38 references.

J. L. F.

OLIVICULTURE IN LIBYA. — In a long and interesting article (*Principali aspetti dell'olivicultura libica, L'agricoltura coloniale*, Firenze, 1939, n° 4, 24 pp., tables, illustrations, bibliography), Signor Vivoli gives very complete information on the history and recent progress of oliviculture in Libya.

The olive has been grown in Libya since time immemorial; it would appear to have been introduced by the Phoenicians towards the XII or even the XIV century B. C. During the period of Roman domination the crop was already common and was one of the principal agricultural resources of the country. The Arabs destroyed a large part of the groves, as they did in Tunisia. The revival of olive cultivation in this area has been undertaken by the Italians during the past twenty years. According to Turkish statistics dating from before the Italian occupation (1909-1019), there were then some 500,000 olive trees in the country. The Italian agrarian policy has developed the native groves to a considerable degree, especially during the last few years, and today the number of trees in these groves is 800,000, an increase of 60 per cent. since 1913.

The greatest development in Libyan olive culture, however, has been due to Italian colonists, and especially during the period since 1926. At that time there were 68,000 olive trees in the European groves and the number increased to 953,000 trees in 1930, 1,342,000 in 1933 and 1,778,955 in 1937. Since 1926, Italian settlers have therefore planted an average of 170,000 olive trees per annum; when these trees reach full production it will be possible to count on an output of 5 million kg. of oil per annum.

The 1,778,955 olive trees planted by Italian settlers over an area of 61,717 hectares, as registered by the census taken on April 21, 1937, are divided up as follows: 724,818 trees planted over an area of 23,635 hectares in unmixed cultivation; 764,547 trees planted over an area of 28,383 hectares and interspersed with almond trees; 245,060 olives grown on an area of 8,188 hectares and interspersed with vines; and 53,530 olives planted on an area of 1,510 hectares and interspersed with vines and almond trees.

The two most important oil-producing centres are in the provinces of Tripoli and Misurata. More than a million olive trees are already growing on the plain skirting the Tripoli coast.

Owing to the special requirements of this crop, the Agrarian Services in Tripolitania have been obliged, in order to avoid serious mistakes, to study and solve various problems in regard to environment, propagation methods, choice of varieties, the spacing out of trees, both on unirrigated and irrigated land, catch crops, etc. The results obtained show the care with which these problems have been studied and solved. From the technical and economic standpoints, the organic system is considered the best method of propagation (cuttings, scions, stocks, etc.). In regard to the selection of varieties, although in the early days of colonisation Tuscan varieties were planted, there was later a tendency to grow some of the sturdy and productive native varieties and these have been extensively propagated. It was feared that difficulties would be encountered with the Italian varieties as a result of the different climatic conditions; these have, however, given good results so far, and time will tell whether they can adapt themselves to the climate of Tripolitania. On dry soils the trees are usually planted on the chequer system, 20 metres apart, while the distance adopted on irrigated land is from 8 to 10 metres. However, given the aridity of the areas planted to olives, which compels them

to spread their roots out in search of moisture, it is advisable to plant the trees at a distance of 25 metres.

In many groves the olive is cultivated in association with the almond and the vine. Although such crop mixtures are necessary to ensure immediate income during the early period before the olive trees begin to bear, they have their disadvantages because the oil yield is diminished when the olive trees begin to bear. At the present time the cultivation of almonds or any other trees in association with the olive is prohibited, while the vine must be uprooted around the trunk of the olive, this being practised on a wider circumference as the tree develops. Annual crops are much more suited to cultivation in alliance with the olive (fodder crops and cereals), but they should not be cultivated after the tree is full grown.

Owing to the light rains which fall in these regions and to their unsatisfactory distribution throughout the year and even from year to year, wherever possible the olive should be irrigated. The ground should be harrowed several times during the dry season in order to prevent as far as possible the evaporation of moisture from the ground.

The present yearly production of olive oil in Libya amounts to 26,000 quintals, produced almost entirely from the native groves. The total consumption is estimated at 36,000 quintals, with a consequent deficit of 10,000 quintals per annum. The olive groves planted by the Italian settlers will, however, soon be yielding a crop, and then it will be possible to count on a total production of from 65 to 85,000 quintals, half of which will be available for export.

Even now it may be anticipated that within a very few years Libya will be able to contribute towards filling the deficiency in fats from which Italy is still suffering, since, although the soil is poor, there is no doubt that oliviculture there will be successful.

A. P.

POULTRY-KEEPING IN THE NETHERLANDS. — The Netherlands have an area of 34,917 square km. and a population of 8.5 million inhabitants, the density being therefore 240 inhabitants per square km. The aggregate value of agricultural production is estimated at 700 million florins yearly, poultry accounting for more than 10 per cent. of this amount.

The development of poultry-keeping dates mainly from the beginning of the present century, but more particularly from the end of the War.

At present there are more than 28.5 million hens producing 3 billion eggs per annum, 40 per cent. of which are exported. Germany absorbs 70 per cent. of the exports, England 22 per cent. and the remainder is divided between Belgium, Switzerland and Spain.

The White Leghorn is the most popular breed, followed by the Rhode Island Red and since their introduction into the country these two breeds have been the object of continuous selection, resulting in very high production. The Barneveld, Welsum and blue breeds in the northern part of the country are the result of crossbreeding between native and imported races. The two former breeds give fine large eggs (70 grammes in weight); the last mentioned, which is a rather early layer and easily fattened, produces especially young eating chickens.

Chicken rearing, with the chief centre in the north of the country, is also a very important branch of poultry production. Exports of live chickens amount to about 1.5 million head per annum, while 1,700 tons of dead poultry are exported mostly to England, France and Germany.

Duck rearing has for long been carried on in the Netherlands, especially in the west, and is now general throughout the country. The most common breed is the Khaki Campbell. The principal aim of duck breeding is egg production.

Poultry farming is generally considered a secondary activity on farms, and there are very few specialized poultry farms, the economic results of such enterprises not having been very satisfactory as a general rule.

Instruction in poultry keeping is given by a State Service under the direction of a State Councillor for Poultry Keeping, who is also the director of the Netherlands Poultry Institute. Vice-Councillors and Assistants are also appointed in the various districts and they contribute to the improvement of the poultry keeping industry. Members of the instruction service and poultry experts give annual courses and train poultry keeping instructors. Theoretical and practical winter courses are organized in every district: the number of these courses given in the 1938-39 season was 102.

Exports of hen and duck eggs are regulated by the law of November 29, 1930: markings, standards, etc., are specified under this law, which also set up a very severe control exercised by the Beekbergen Office.

The main factors which have contributed towards the progress and improvement of poultry-keeping in the Netherlands may be summarized as follows: (1) diffusion of specialized instruction in poultry-keeping; (2) cooperative organization of producers; (3) breed selection, checking of egg-laying, etc.; (4) control of exports; (5) state intervention.

A. P.

RECENT PROGRESS IN THE CONSTRUCTION OF COMBINE-HARVESTERS. — Two new models of combine-harvesters, characteristic of present trends in the construction of these machines, have recently been put on the market.

These are the small "All-Crop Harvester", produced by the Allis-Chalmers Company in the U. S. A. and the Harvester-Thresher-Binder built by the Claas company in Germany.

The Allis-Chalmers small combine harvester is a new and smaller edition of the "All-Crop Harvester" produced three years ago, which cuts a 60 inch swath and is constructed for the medium-sized family farm in the United States (see this Review, 1936, No. 8, page 318). The new model cuts a swath of only 40 inches and is planned for the use of a small family farm of less than 100 acres. Its total weight is 1,700 lb. It is designed so that it can be drawn or operated by a single-furrow plough tractor. The price in the United States is 345 dollars.

The machine is built without a chassis, its solidity being ensured by a pressed sheet-iron framework. The various parts are arranged so that the crop traverses the machine in a straight line in an inverse direction to the progress of the harvester; the cereals, falling from the cutting bar on to a moving platform, are conveyed in a straight line to the thresher, which is of the beater type and which then throws them on to a counter-beater; the beaters of these two parts are rubber-covered as in them previous model, so that threshing is softened and the machine may therefore be used for peas and other grains as well as for cereals. The threshing drum is 3 feet in length with a diameter of 15 inches. The shaker is 5 ft. in length and 3 ft. in width; the distance between the axle of the drum and the exit for the straw is 6 ft. 3 in. The overall width of the machine is 7 ft. 1 in. and length 16 ft. 3 in. Under favourable conditions, one acre can be harvested and threshed per hour. In speaking thus of "harvesting", the grain only is meant, as the straw and husks are thrown back on the field; this simplifies the design of the harvester-thresher and saves transporting the straw, but is an obstacle to the sale of these machines in districts where the straw has to be utilized. Moreover, by leaving the husks on the ground all the weeds are also left behind and there is a risk of these invading the field again. Collection of the husks would eliminate this defect, which is common to American combine harvesters.

European farmers cannot do without the husks and straw, and this complicates the use of combine harvesters considerably. Collection of the straw by a combine harvester was accomplished in France many years ago by DOUILLET with an ingenious machine (see this *Review*, 1928, No. 9), which however was mable to clip and clean the grain. New machines producing cleaned grain have been designed by W. G. BRENNER in Germany for the Claas Company. The first of these machines, of very original design, with a cutter in front and propelled by a tractor, and in which the cereals were threshed by a very short vertical beater, seems to have met with considerable difficulties in practice, as the more recent model constructed by the same firm is built on more usual lines.

In this machine, too, work proceeds in a single direction, in this case crosswise to the direction in which the thresher advances. This form of construction has had to be adopted so that the crop may reach the thresher from the side and thus permit of the straw reach the thresher from the side and thus permit of the straw being bound in bundles afterwards. In Europe it is not advisable to press the straw behind the harvester-thresher as it is still damp and would not dry satisfactorily. The transverse process requires the axle to be arranged lengthwise. In principle therefore this model is similar in design to the DOUILLET combine harvester, but the thresher is arranged at a higher level and the necessary cleaning devices have been introduced into the machine. The cutting bar is a little more than 2 metres in width and the weight of the whole machine is about 2 tons. It requires a tractive force of about 38 HP. The price in Germany is about 5,000 marks.

Contrary to the system adopted in American models, cereals are cut very low, but the machine cannot operate unless the stalks are at least 1 m. 60 in height. The straws is bound in bundles which gather on a shelf opposite the cutting bar and is then dropped on the ground in groups. The husks are blown into a covered trailer which is replaced by another when full. In this the seeds of the weeds are also collected and can do no harm. If the straw is still damp it can dry on the field while the grain is put under cover. In comparison with other methods used at the present time, the harvester-thresher-binder offers the advantage of a great economy of labour. Its turnover of about 300 quintals of cleaned cereals per day makes it especially suitable for large farms. However, in Europe even more than in the United States, a need is felt for machines suited to the small family farm, and the small model of the Allis-Chalmers harvester-thresher should encourage constructors to follow up this line.

H. J. H.

CONDITIONS FOR THE USE OF OLIVE-OIL IN THE NORWEGIAN CANNING INDUSTRY. — M. Beaujard, French commercial attaché in Norway, in the "*Moniteur officiel du commerce et de industrie*" (February 23, 1939) describes as follows the conditions for the use of olive-oil in the canning of brislings and small herrings.

These conditions were drawn up by the Laboratory of the Norwegian canning industry and imposed by the Hermetikkfabrikkenes Brislingcentral A/S (Canned Brisling Marketing Board) and the Hermetikkfabrikkenes Sildcentral A/S (Canned Herring Marketing Board), i. e. the organizations controlling the export of Norwegian canned fish, and must be strictly observed by the exporters of olive-oil. They are listed below.

- (1) The oil must be clear and free of water, mucilage and other impurities, which means that it must have been carefully filtered.
- (2) It must have a golden yellow tint with a slight greenish or brownish tinge.
- (3) It must have a pure and agreeable taste and odour.
- (4) The acidity (percentage content of free fatty acid) must not exceed 1.7 per cent., if the product consists only of natural olive-oil.

- (5) Pressed oil, chemically refined, if contained in a blend, must not exceed 30 per cent. of the mixture. This refined oil must be of good quality.
- (6) It must not contain refined extraction oil from the oil cake (sulphide oil).
- (7) It must be non-precipitating, i. e. it must not precipitate solid fats at a temperature of $+8^{\circ}$ to $+4^{\circ}\text{C}$.
- (8) The index of iodine must not exceed 88.
- (9) Its rancidity must not exceed 10.0 in red Lovibond units under the Kreiss quantitative analysis.
- (10) The ash content must exceed 30 milligrammes per litre of olive-oil.

Notes.

Condition 1. — That the oil should be carefully filtered and free of water and foreign bodies is important for its conservation. The water (water of the fruit extracted in pressing) and other foreign bodies increase the acidity which may gradually lower the quality of the oil.

Condition 2. — The colour of the olive-oil is a criterion for judging its quality. The golden yellow tint is generally accepted as an indication of good quality. If the oil has a pronounced green or brown tinge, it may indicate that the olives were not ripe (windfalls) or, as is more often the case, that the fruit has been subjected to too strong pressure, so that the chlorophyll has mixed with the oil; after a certain period of storage the marked green tint of certain newly manufactured natural oils generally becomes yellow brown.

Condition 3. — If the oil has a disagreeable or unnatural taste or odour, it means that rotten fruit (fallen and maggoty fruit) has been used or that the preparation and despatch of the oil was made in unhygienic conditions.

Condition 4. — If the acidity (content of free fatty acid) is high, this indicates that the oil is not of first quality. But acidity alone is not the only criterion of quality. If for example a pure natural oil with an acidity of 2 (i. e. unacceptable) is mixed in equal proportions with a chemically refined pressed olive-oil, (also unacceptable) and which contains no acid, the blend with an acidity of 1.0 conforms with the conditions laid down by the Laboratory. It is with this fact in mind that condition 5 has been added to condition 4.

Condition 5. — This condition is particularly important and has been more than any other the subject of controversy. It will therefore be discussed at greater length.

It is a common practice to make blends of pure natural olive-oil with small quantities of refined and neutral pressed olive-oil, in order to build up large stocks and at the same time to deliver a uniform type throughout the season. If the refined oil is of good quality and is only used in small proportions in the mixture, it will not lower the quality of the unrefined oil mixed with it; on the contrary it will offer certain advantages. In normal conditions the quality of such a blend does not deteriorate during long storage.

If, however, the chemically refined oil constitutes an essential part of the blend, the quality of the mixture may fall during long storage, particularly if this refined oil is not of the best quality. This is the reason why the Laboratory, in accord with most of the oil experts of Tortosa, Reus and Borjas Blancas, have fixed the proportion of chemically refined oil in the blend at 30 per cent.

Certain people have pointed out that blends with as high a proportion of refined oil as 80 per cent. or even higher are used by Spanish and French canning factories. Nevertheless, as a result of systematic experiments made by the Laboratory in the canning of brislings and small herrings in blends of varying proportion of natural and refined olive-oil, the conclusion was reached that a large proportion of refined oil is

not very good for these fish. This became increasingly clear after successive periods of storing. The determination of the amount of refined pressed oil in a blend is made by the visual method (method of G. Lunde and F. Stiebel) and the results of the analyses of the Laboratory appear in its table under the title: Maximum fluorescence in blue. If the index under this heading is below 130 the oil is natural. As the proportion of refined oil rises, so the index also rises and reaches about 600 for pure chemically refined pressed oil.

Condition 6. — Refined extraction oil, also called sulphide, oil extracted from olive-cakes by carbon bisulphide and trichlorethylene respectively, is not considered in oil-producing countries as an edible oil; it is employed for industrial purposes.

Condition 7. — All olive-oils, of whatever type, precipitate solid fats at a sufficiently low temperature and continue to do so as the temperature falls until they eventually solidify. Accordingly, brislings and small herrings canned in olive-oil, when stored at a low temperature, contain particles of fats which spoil the appearance of the product and cause complaints from customers. We have noted that oils of various origins deposit fat crystals at various temperatures. The chilling test carried out by the Laboratory (drying, filtering and storing of the sample for a day at a temperature of $+8^{\circ}\text{C}$. and for three days at $+4^{\circ}\text{C}$.) showed that Spanish oils both from the south and north of the country give no precipitation in the above conditions.

Generally speaking, the oils of Tunisia and Algeria show less satisfactory results in the precipitation test than the Spanish oils, and the quantity of fat precipitated increases the further south the origin of the oil.

In the testing of the samples in winter on the dockside, it is possible that the interior of the barrels is coated with a layer of fat crystals. Accordingly, the staff of the Laboratory see that the olive-oil is well stirred in the barrel before the test. If the amount of solid fats is too high for a fair test to be made, a number of barrels are sent to the Laboratory, where the oil is electrically heated and clear and well mixed samples can be taken.

Condition 8. — The iodine index is characteristic of a large number of edible oils. For olive-oil this index is so low (79-88) that any blend with another edible oil would make it exceed 90.

Condition 9. — Chemical reactions causing rancid taste and odour give rise to new substances, in small quantities, which can be chemically revealed by coloured reactions, even before the rancidity can be detected by our senses. The Kreiss index is a criterion of the age and conservability of the oil.

Condition 10. — A natural olive-oil, well filtered, has a low content in ash, which is obtained by complete combustion of the oil. A chemically refined olive-oil may contain dissolved soap suds, if it is not sufficiently washed after the free acids in the oil have been neutralized by the alkaline soda. This soap reduces the conservability of the oil.

G. R.

BAKING QUALITY TESTS. — The valuable "Bibliography of Baking Quality Tests", issued by the Imperial Bureau of Plant Breeding and Genetics in 1934, has been brought up to date by the publication of a supplement which contains titles of papers from 1933 to 1938 inclusive.

Some of the papers noted have been abstracted in "Plant Breeding Abstracts" but many, because of their specialist nature have not been reviewed and will thus become available to workers of the subject.

A note of volume and abstract number in the margin indicates where an abstract may be found in "Plant Breeding Abstracts", and the titles are arranged alphabetically according to authors. Given sufficient demand, further supplements are promised from time to time.

J. L. F.

TECHNICAL BIBLIOGRAPHY *

BACCALARIO Carlo, *Le industrie agrarie* (Enologia-Caseificio - Oleificio), Udine, (Istituto delle edizioni accademiche) 1938, 351 o., tables, illustrated.

[This important work published under the title of *Agricultural industries* is a survey of questions in regard to oenology, milk products and olive-oil, with special considerations regarding the development of these industries in Italy.

Each subject is treated in a series of well documented and sufficiently detailed chapters, which give a precise and clear idea of the particular question. The section on oenology is the fullest and most complete. It includes an introduction and fourteen chapters: 1. The localization of the wine industry. — 2. The cisterns for wine making. — 3. The first stage: the grapes. — 4. The vintage and the must. — 5. The neutralization of musts. — 6. Alcoholic fermentation and selected *ferments*. — 7. The control of the turgid fermentation. — 8. — Drawing off, pressing and utilization of weak wines. — 9. Supervision of the neutralization and conservation of wines. — 11. Geographical distribution of wines in Italy. — 12. The adulteration of wine. — 13. The adulteration of wine in relation to the law. Tasting and analyses for commercial valuation. — 14. Vinegar and its manufacture.

The section on milk and dairy products includes an introduction and eight chapters: 1. The raw material: milk. — 2. Rapid method of analysis for the commercial grading of milk. — 3. Milk hygiene. — 4. The localization of the cheese industry. — 5. Butter manufacture. — 6. Cheese manufacture. — 7. Cheese products in Italy. — 8. By-products of the dairy industry.

The section on olive-oil also consists of an introduction and eight chapters: 1. The olive and the oil. — 2. The picking and preparation of olives. — 3. The localization of the oil industry. — 4. The extraction of the oil. — 5. The neutralization and conservation of the oil. — 6. Alterations and adulterations of olive-oil. — 7. Tasting and the classification of fine oils. — 8. The by-products of the oil industry.

This book constitutes a real course in the technique of agrarian industry, and describes very clearly the present state of these three important agricultural industries. It will be found useful not only by farmers but also by experts.] A. P.

MATAGRIN A., *Le soja et les industries du soja: Produits alimentaires, huile de soja, lécithine végétale, caséine végétale*. Gautier-Villars, Imprimeur-Editeur, 55, Quai des Grands Augustins, Paris VI (1929), 390 p. 46 illustrations, price: 60 francs.

[The A. aims at collating as far as possible all that has so far been written of the plant and bean, and the industrial uses of soya. For this he has made use of most of the works hitherto published on the cultivation and uses of the soya bean. He desires, in condensing the literature on soya in a single handy-sized volume, to aid French enterprise to develop the soya bean industry and to encourage French farmers to regard this crop more favourably.

The book is divided into seven chapters supplemented by a bibliography. These chapters are on: The agricultural, industrial and commercial history of the soya bean; 2. the botany and agronomy of the soya; 3. the general chemistry of the soya; 4. the soya in food preparations and manufactures; 5. the industries of soy bean oil and by-products; 6. the industry of vegetal lecithin; 7. the industries of vegetal casein and plastics with a soya basis.

The A. deals chiefly with the industries and the different uses of soya beans. He has succeeded in gathering the fullest information on all kinds of preparations from soya and enters into the fullest details of the industry and the chemistry of these products. His book, which does not deal at length with questions directly interesting farmers or agronomists, is on the other hand of first importance to anyone interested in the soya bean industry. Technicians will be glad to have assembled in a single volume all the information at present available on this subject. A work of this kind was needed in French.

J. L.

* Reviews of publications received appear under this heading.

GALLINAI, P. J., BERGALLI U. L., CAMPAL, F. E., LEONARI A. L., and ROSENGURTT B., *Estudios sobre praderas naturales del Uruguayo*. Montevideo, 1938, 208 p., tables, illustrations, bibliography, résumés in English.

[This work, unpublished at the beginning of 1938, represents a first contribution to the study and solution of an important agricultural and stock-breeding problem of Uruguay: that of a better understanding and utilization of the permanent or virgin meadows of the country.

This study, which has required four years of methodical work, is divided into three parts. The experiments were carried out in the south and southwest of Uruguay. First there were set up a certain number of experiment stations which proceeded to analyze the soils and fodder obtained in the first four cuttings: qualitative and quantitative botanical analyses with statistical comments. Later, the general characteristics of the Palleros zone were studied (geological and agrogeological notes, climatology principal morphological characteristics, etc.); a large amount of experimental work is described on the various fodder species which grow wild in this area, on the natural conditions and the means of improving them.

The second part of the work is devoted to the study of yields (losses of water on dry lands, cyclical variations in yield, production of various types of meadows, etc.) to geographical influences on fodder production (action of various soil elements, climatic influences, etc.) and to the quality of the fodder (average chemical composition of fodder of the Palleros meadows, chemical composition at different seasons, quality of the various types of meadows studied, etc.).

The third part examines the utilization of permanent meadows, particularly the economic value of fodder yields, the optimum and maximum producing capacity of meadows, the means of increasing the yield of permanent meadows, the natural selection of the fodder flora and the most suitable methods of attaining these ends.

Each of the very detailed chapters, comprises also a résumé in Spanish and English. A map of Uruguay at the end shows where the area studied is situated.

The conditions of Uruguayan stock-breeding are special: 7 million cattle and 15.5 million sheep on a territory of 18.7 million hectares and with 2 million inhabitants. It is interesting therefore to learn of the present evolution of the most important branch of the economic life of the country as the result of an attempt to transform the composition of the virgin meadows with the object of better fodder production.] A. P.

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AFRICA italiana; pubblicazione... dell'Istituto fascista dell'Africa italiana. Roma, v. 1 (1938-1939)–, mens. Lit. 30 int., Lit. 60 étr. [Added supplement: « Bollettino dell'Istituto fascista dell'Africa italiana »].

THE AUSTRALIAN journal of science; [published... by the Australian National research council...], Sydney, v. 1 (1938-1939)–, 6 times a year, 12 s.

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(*) List of abbreviations: biheb. (biweekly); bimens. (twice monthly); bimestr. (every two months); déc. (every ten days); étr. (foreign price); fasc. (copy); heb. (weekly); int. (home price); irr. (irregular); mens. (monthly); n° (number); N. S. (new series); p. a. (per annum); q. (daily); sem. (half yearly); s. (series); v. (volume); trim. (quarterly).

N. B. — Between brackets [/] are given translations and explanatory notes not appearing in the title of the review.

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Dott. VALENTINO DORE, *gerente responsabile*.

PLANT PROTECTION

INTERNATIONAL BULLETIN OF PLANT PROTECTION

DISCOVERIES AND CURRENT EVENTS *

Germany: Further Records of the Colorado Beetle (*Leptinotarsa decemlineata*) in 1938 †

During the period from July 1 to October 13, 1938, the Colorado beetle was again reported in 1695 communes in the western area of the Reich.

The beetle was reported for the first time in the following 73 districts: Untertaunus (46 communes), Unterlahn (26 communes), Ahrweiler (25 communes), Kochen (23 communes), St. Goarshausen and Schleiden (each 20 communes), Dieburg (16 communes), Gross-Gerau (13 communes), Kirchheimbolanden and Limburg (each 12 communes), Wetzlar (10 communes), Oberlahn (9 communes), Main-Taunus, Neuenburg, Neustadt a. d. W. and Unterwesterwald (each 8 communes), Offenbach, Oppenheim and Usingen (each 7 communes), Dillkreis, Friedberg and Lahr (each 5 communes), Darmstadt and Oberbergischer Kreis (each 4 communes), Alzenau, Aschaffenburg, Frankfurt, Lohr, Oberndorf, Obertaunus, Oberwesterwald, Schotten and Siegen (each 3 communes), Biedenkopf, Calw, Erkelenz, Gelnhausen, Grevenbroich, Cologne, Leonberg, Nagold, Olpe, Ravensburg, Rottweil, Stockach and Wittgenstein (each 2 communes), Altena, Altenkirchen, Arnsberg, Baden-Baden, Backnang, Böblingen, Bidingen, Ehingen, Essen, Hechingen, Heilbronn, Kempen, Krefeld, Mainz, Marktheidenfeld, Maulbronn, Meschede, Mosbach, Mörs, Pforzheim, Rees, Rheydt, Schwäbisch-Gmünd, Sigmaringen, Tuttlingen, Überlingen and Wattenscheid (each 1 commune).

For records previously made in other parts of Germany, see this *Bulletin*, 1938, No. 8, p. 169, No. 10, p. 213, and No. 11, p. 241.

Belgium: The Colorado Beetle in 1938 §

The year 1938 was marked by a notable increase in the number of foci of *Leptinotarsa decemlineata* and by a northward extension of the areas attacked by the Colorado beetle.

While in 1937 the Colorado beetle was reported in 17 communes with 39 foci, in 1938 more than 1200 communes were attacked by this pest.

* Under this and the next heading the countries are arranged in French alphabetical order.

† Communication from the Biologische Reichsanstalt für Land- und Forstwirtschaft, Berlin-Dahlem, official correspondent of the Institute.

§ Communication from Prof. R. MAYNÉ, Director of the State Entomological Station, Gembloux, transmitted by the official correspondent of the Institute, Prof. E. MARCHAL, Director of the State Phytopathological Station, Gembloux, Belgium.

The rapid spread of the insect over Belgian territory, coinciding with serious infestations in other European countries, is due to the mass flight of insects from the south; these insects settled in swarms in Belgium and even further north, creating new foci. The latter were scattered throughout the country as follows:—

Brabant	146	communes affected
West Flanders	188	» »
East Flanders	214	» »
Hainault	313	» »
Liège	33	» »
Luxemburg	114	» »
Namur	150	» »
Antwerp	37	» »
Limburg	38	» »
Total	<u>1233</u>	<u>communes affected</u>

The insects appeared in all communes as more or less considerable localized foci; in several cases only one insect was captured.

The first of the foci was discovered on June 4 at Esplechin, Hainault and the last on October 17 at Stavelot, Liège.

In one instance, the Colorado beetle was discovered on henbane.

Control activities were intensified to meet the new situation.

Surveys were carried out by the schools and by private individuals; treatment was applied under the direction of experts from the Department of Agriculture; labour, equipment and materials were supplied at first and until July, by the Ministry of Agriculture; later the communes took part in the control campaign directly, supplied with material at reduced prices by the Government.

Eritrea: *Locusta migratoria migratorioides* *

During the first ten days of October, 1938, hoppers of *Locusta migratoria migratorioides* were reported from the hottest areas, *i. e.*, the low-lying plains in the west and in the Seraé and Atchelé Guzai plains, sheltered from the cold night winds.

About the middle of the month abundant new hatchings were reported from the entire Hamasien area and from western and eastern Tigray.

Many large swarms coming from the low-lying plains in the west and flying towards the eastern low-lying plains passed over the high plateaux in the course of the month. Many came from the Kassala area, and the passage of enormous swarms flying towards the interior of Eritrea was reported daily from the Sudan frontier.

In the low-lying plains of the west also, numerous hoppers became fully developed and spread towards the high plateaux. It was found impossible to

* Communication from Dr. LUIGI M. BOLOGNA, Chief of the Agricultural Office of Eritrea, Asmara, transmitted to the Institute by the Government of the Colony.

deal with them in this region, owing to the nature of the land, to the scantiness of the population and to a recrudescence of malaria.

In the hatchings reported from the neighbourhood of Addi Ugri, Addi Quala and Decamerè, the presence of hoppers of the *transiens* phase was frequently observed.

The parasite mentioned in the September report [see this *Bulletin*, 1938, No. 12, p. 265], appears to belong to the genus *Trombidium* (*T. holosericeum* L. ?). The insects carrying this parasite, however, showed no signs of being affected by its presence.

Instances of locusts carrying the *Trombidium* were frequently found in all the swarms from which it was possible to obtain specimens.

Another parasite was reported in the low-lying western plains and in the Schirè. So far it has been impossible to examine any specimens, but from the description given it would appear that this is a fungus parasite, probably *Empusa grylli*.

The crops, which were almost ready for harvesting, were very seriously damaged. Control measures were organized by the political authorities, the work being carried out by experts working under the instructions of the Agricultural Office of the Colony. As hoppers were found in the middle of the crops and poisoned bait did not attract the insects, the work was exceedingly difficult.

Threshing was impossible and fire-throwers were of no avail in arresting the invasion. This system gave excellent results, however, in clearing the railway at Arbaroba and Agat.

To prevent danger to motor traffic from the hopper bands covering the asphalted surface of the principal highways, the roads were sprayed with 3 per cent. solution of sodium arsenite. This method gave good results.

Luxemburg (Grand Duchy of): The Colorado Beetle Situation in 1938 *

In 1938, the Colorado beetle (*Leptinotarsa decemlineata*) was reported in the following districts of the Grand Duchy:—

Luxemburg city area	8	communes infested with	10 foci
Luxemburg Canton	14	»	» 27 »
Capellen »	18	»	» 94 »
Esch »	29	»	» 180 »
Mersch »	12	»	» 25 »
Echternach »	6	»	» 25 »
Grevenmacher »	11	»	» 20 »
Remich »	13	»	» 25 »
Diekirch »	13	»	» 35 »
Rédange »	25	»	» 76 »
Wiltz »	15	»	» 37 »
Clervaux »	11	»	» 15 »
Vianden »	1	»	» 1 »
Total . . .	176	communes infested with	570 foci.

* Communication from the official correspondent of the Institute, Dr. VICTOR FERRANT, Chief of the Phytopathological Service, Luxembourg, Grand Duchy of Luxembourg.

Mozambique: Locust Movements *

No locusts were reported in the Province of Nyassa (Porto Amelia and Mozambique districts) during August 1938. On the 18th, however, a large swarm of red locusts (*Nomadacris septemfasciata*) from the uplands of 'Gorongóza' (Manica and Sofála territories) passed over the Barué district in the Tete region, Zambesi Province.

No locusts were observed in the Inhâmbane and Lourenço Marques districts, Sul do Save Province.

Hence as compared with July, the locust situation in the Colony may be considered unchanged. It is probable, however, that this will soon be altered, but only in the west central and northwestern areas, where further invasions are expected owing to the activity of *N. septemfasciata* in the neighbouring colonies on the west.

Southern Rhodesia: Locust Invasion, 1932-38 †

Monthly Report No. 70. September, 1938.

Numerous swarms of the red locust (*Nomadacris septemfasciata*, Serv.) have been reported during the month. Reports have been received from eleven districts in Mashonaland, namely:— Lomagundi, Melsetter, Inyanga, Rusapi, Sebungwe, Umtali, Bekita, Hartley, Gutu, Makoni and Chibi; and from five districts in Matabeleland, namely:— Gwelo, Bulalima-Mangwe, Bulawayo, Sebungwe and Matobo.

Many of the swarms have been described as large. There appears to be a general tendency for the swarms to move in a southerly direction. The Melsetter district has been invaded by many swarms from Portuguese East Africa. Some damage to winter crops and fruit trees have been notified.

The development of colour has passed the deepest red stage.

Italian Somaliland: Locusts §

No locusts were reported in the Colony in October and November, 1938.

* Communication from Mr. C. DE MELLO VIEIRA, Acting Chief of Agricultural Services, Section of Entomology, Lourenço Marques, Mozambique.

† Communication from Mr. J. K. CHORLEY, Acting Chief Entomologist, Agricultural Laboratory, Department of Agriculture, Salisbury, Southern Rhodesia.

§ Communication from Dr. MARTINO VIDOTTO, Acting Chief of the Agricultural Services of Italian Somaliland, Mogadiscio, transmitted to the Institute by the Government of the Colony.

LEGISLATIVE AND ADMINISTRATIVE MEASURES

Algeria. — A Decree of September 26, 1938 regulates the use of hydrocyanic acid gas for disinfecting plant products, growing plants and soils, and also greenhouses and warehouses where foods are handled or stored. (*Journal officiel de l'Algérie*, Alger, 7 octobre 1938, XII^e année, n^o 40, p. 1702-1704).

*** A Decree of the President of the French Republic, dated September 28, 1938, regulating the production, sale and transport of wheat seed in Algeria, provides, *inter alia*, that no dealer may transport, for purposes of sale, place on sale or sell as wheat seed any lots of grain containing weed seed and bunted wheat (*Tilletia tritici*). (*Ibid.*, 4 novembre 1938, n^o 44 p. 1992-1993).

*** A Decree issued by the President of the French Republic, dated October 31, 1938, provides, *inter alia*, that the Government General of Algeria, if a species of wild animal is in danger of extinction, may prohibit not only the hunting of this animal, but also its destruction by a landowner or farmer, although compensation may be allowed to those landowners who produce evidence of the damage done by the animal to their crops.

The Governor General may approve the formation of departmental federations of hunting societies with the object of improving hunting in Algeria, especially by the preservation of game, the creation of reserves, breeding, general protection, the protection of birds useful to agriculture and the destruction of noxious animals. (*Bulletin de l'Office des Renseignements agricoles*, Paris, 15 novembre 1938, année 1938, n^o 22, p. 583).

Germany. — By Decree dated September 24, 1938, the Ministry of Agriculture modified the Decrees dated October 20, 1937, January 19, March 5, May 6 and June 16, 1938 [see this *Bulletin*, 1938, No. 2, pp. 29-30; No. 6, p. 125; No 7, p. 149, and No. 9, pp. 193-194] and granted further facilities for the importation and transit of horticultural produce from France, Belgium, Luxemburg and Switzerland.

Chicory may enter the country during the period from October 15 to November 14, and celery stalks from September 10 to November 14. (*Amtliche Pflanzenschutzbestimmungen*, Berlin, 1. December 1938, Bd. X, Nr. 8, S. 220).

Angola. — The Minister for the Portuguese Colonies, by Decree No. 28:573 of April 7, 1938 has authorized the Governor General of Angola to include in the 1938 budget a special credit of 500,000 'angulares' for locust control in the Colony. (*Diário do Governo*, Lisboa, 7 de abril de 1938, I série, núm. 80, pág. [639]).

Argentine Republic. — Decree No. 115.421 of September 30, 1937 authorizes the application of the provisions of Decree No. 108.722 of June 21, 1937, relative to the establishment of a plant disinfection station at the port inspection bureau under the control of the Plant Protection Department of the Ministry of Agriculture. (*Boletín Oficial de la República Argentina*, Buenos Aires, 23 de agosto de 1938, año XLVI, núm. 13.223, pág. 10932).

** Decree No. 11.358 of September 2, 1938 modifies Decree No. 83.732 of June 3, 1936 [see this *Bulletin*, 1936, No. 12, p. 265] relative to the import of plants, parts of plants and other plant products. (*Ibid.*, 7 de septiembre de 1938, núm. 13.235, pág. 11750).

** Law No. 12.559 of September 30, 1938 authorizes the expenditure of 10 million 'pesos' for the control of locusts [*Schistocerca paranensis*] during the year 1938-39. (*Ibid.*, 17 de octubre de 1938, núm. 13.268, pág. 14072).

Australia (New South Wales) * — Ordinance No. 50, as made by Proclamation of August 31, 1938, published on September 2, 1938, prescribes methods of eradication of noxious plants in general and methods of eradication of *Erythroxylum coca*, *Papaver somniferum*, *Cannabis sativa*, *Homeria collina*, *Senecio jacobaea*, and *Ailanthus glandulosa*.

Three forms are appended to the said Ordinance.

** By Proclamation of September 14, 1938, published on September 16, 1938, Ordinance No. 50 is amended in form 1.

France. — By Decree of October 11, 1938 the composition of the advisory Committee for plant protection has been changed. (*Journal officiel de la République française*, Paris, 15 octobre 1938, LXX^e année, n^o 242, p. 11999-12000).

Italy. — By two Ministerial Decrees of September 17, 1938, the application of the exchange duty at the reduced rate of 0.75 lire per cent. is extended from October 1, 1938 to the parasiticides sold in commerce as 'E. I. A.' ('Emulsione Italiana Antiparassitaria') and 'Solforamica S. P. A.' (*Gazzetta Ufficiale del Regno d'Italia*, Roma, 8 ottobre 1938, anno 79^o, n. 231, pp. 4242-4243).

** A Ministerial Decree of September 20, 1938 lays down the regulations for the import of foreign potatoes intended solely for planting, for the 1938-39 season. (*Ibid.*, 27 settembre 1938, n. 221, p. 4055-4056).

* Communication from the Prime Minister's Department, Canberra, Australia, to the International Institute of Agriculture.

Libya. — By Decree dated January 31, 1938, issued by the Governor General of Libya, only expressly authorized firms and persons may plant nurseries and cultivate for sale or deal in plants, portions of plants and seeds for cultivation, including ornamental plants.

Permits to continue operating a nursery, to cultivate for sale or to sell plants portions of plants or seeds, or to perform such operations, will be granted by the Governor General of Libya on the recommendation of the Agricultural Office attached to the Prefecture of the area where the concern is situated. Where required this Office will make any inquiries necessary for purposes of control.

These permits may be discontinued at any moment for an indefinite period, or even revoked, should the periodic control visits of the above-mentioned Office reveal the presence of produce attacked by parasites or by dangerous and contagious diseases.

In case of infections declared as dangerous, the Office may order the disinfection of the produce at the expense of the interested party, according to the advice and in the presence of an expert attached to the said Office, or may order the partial or total destruction of the produce.

All nurserymen and traders in plants, parts of plants and seeds are required to declare to the Agricultural Office of their respective Prefecture, any dangerous and transmissible animal or plant parasites, found on their plants or produce. (*Agricoltura Libica*, Tripoli, dicembre 1938, anno VII, n. 12, pp. 565-567).

Mexico. — By 'Acuerdo' of September 5, 1938, avocados grown in Sinaloa State may be transported to Sonora State and the Territory of Lower California if accompanied by a certificate testifying that these fruits are not attacked by the 'barrenador del hueso' (*Heilipus lauri*) or by the fruit fly (*Anastrepha* sp.). (*Diario Oficial*, México, 26 de septiembre de 1938, tomo CX, núm. 21, pág. 2).

* * The 'Acuerdo' of September 7, 1938 modifies the local quarantine regulation No. 1 relative to the control of the pink bollworm [*Platyedra gossypiella*] in regard to time of harvesting and the cleaning of cotton fields. (*Ibid.*, págs. [1] y 2).

Peru. — A Resolution of July 13, 1938 provides for the consideration of a plan for the control of grape phylloxera in the Departments of Moquegua and Tacna. (*El Peruano*, Lima, 6 de agosto de 1938, año 98, tomo II, trim. III, núm. 174, pág. 776).

Poland * — By Ministerial Decree, dated March 2, 1938, the voivodes are authorized to apply compulsory measures against the beet leaf bug (*Piesma quadrata*); to designate areas where destruction shall be compulsory and deter-

* Communication from the official correspondent of the Institute, Prof. Dr. STANISŁAW MIN-KIEWICZ, Chief of the Department of Entomology, Government Institute for Agricultural Research, Puławy, Poland.

mine the duration of, and methods to be adopted for the control measures; to request the collaboration of state officials, of the staff appointed by the Chamber of Agriculture and of the Agricultural Societies.

Tunisia. — By Decree of June 8, 1938, the proprietors of vineyards are formed into a compulsory association. This association is entitled the 'Syndicat général obligatoire des viticulteurs de Tunisie' and is required, *inter alia*, under the control of the Administration:—

(1) To inspect vines, to ascertain the presence of grape phylloxera and, on request of the Administration, to control phylloxera and to apply suitable treatments against the various pests or diseases of the grape-vine;

(2) To assist in forming new plantations with American plants, by establishing fields of mother American plants, district and local nurseries for the production of rooted and grafted plants to replace vines destroyed or attacked by phylloxera, and experimental vineyards for determining the best vine stocks. (*Bulletin de la Direction des Affaires Economiques*, Tunis, 2^e trimestre 1938, XLII^e année, n^o 173, p. 146-150).

Yugoslavia. — Decree No. 40049-II, dated June 15, 1938, lays down the methods to be adopted in the campaign against the San José scale (*Aspidiotus perniciosus*) in the territory administered by the City of Belgrade. (*Službene Novine*, Beograd, 21 juna 1938, godina XX, broj 136-XLI, str. 784-786).

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NOTES

Fourth Conference of the International Committee for the Mutual Study of the Control of the Colorado Beetle. — This Conference will meet on February 2, 3 and 4, 1939 at Wageningen, Netherlands.

Official Correspondents. — Dr. L. N. SETH, Mycologist, Department of Agriculture of Burma, at Mandalay, and Mr. L. J. S. LITTLEJOHN, Phytopathologist, Department of Agriculture of Cyprus, at Nicosia, have been appointed official correspondents to the International Institute of Agriculture on questions relating to plant protection in their countries.

Prof. ALESSANDRO BRIZI, *Segretario generale dell'Istituto, Direttore responsabile.*

INTERNATIONAL BULLETIN OF PLANT PROTECTION

DISCOVERIES AND CURRENT EVENTS *

Germany: Further Records of the Colorado Beetle (*Leptinotarsa decemlineata*) in 1938 †

During the period from July 1 to November 13, 1938 the Colorado beetle was reported for the first time in the following 9 administrative areas: Rheinisch-Bergischer Kreis (2 communes), Borken, Crailsheim, Giessen, Hall, Marbach, Marburg, Münsingen, and Rhein-Wupperkreis (each one commune).

For reports made previously in other administrative areas of Germany, see this *Bulletin*, 1938, No. 8, p. 169; No. 10, p. 213; No. 11, p. 241 and 1939, No. 1, p. 1.

Australia: Notes on Plant Diseases Recorded in New South Wales for the Year Ending 30th June, 1938 §

CEREALS AND FIELD CROPS.

Wheat crops were relatively free from disease. Flag Smut (*Urocystis tritici*) although serious on susceptible varieties is now becoming of less consequence as resistant varieties are so widely grown. Pseudo-black chaff was noted in several varieties but was of little importance. Ergot (*Claviceps paspali*) was again widespread in paspalum in coastal areas. Kernel smut (*Sphacelotheca sorghi*) caused losses in broom millet crops. Potato crops in coastal areas suffered severely from an outbreak of late blight (*Phytophthora infestans*). Less serious infections were recorded in the case of brown rot (*Bacterium solanacearum*), early blight (*Alternaria solani*) and tomato spotted wilt (virus) in potatoes. Potato leaf roll is still the most common virus disease in this crop.

It was estimated that maize yields were reduced by approximately 12 per cent as a result of root, stalk and cob rots (*Gibberella saubinetii*, *G. fujikuroi* var. *subglutinans* and *G. moniliformis*). American maize smut (*Ustilago zaeae*)

* Under this and the next heading the countries are arranged in French alphabetical order.

† Communication from the Biologische Reichsanstalt für Land- und Forstwirtschaft, Berlin-Dahlem, the official correspondent of the Institute.

§ Communication from the official correspondent of the Institute, Dr. R. J. NOBLE, Biologist, Department of Agriculture, Sydney, New South Wales, Australia.

was recorded in a commercial area of maize. The crop was destroyed by fire and the area subjected to quarantine regulations with a view to checking spread of the disease.

Major losses in pea crops resulted from *Fusarium* and *Rhizoctonia* root rots. Lack of root nodules was associated with a crop failure in one area. Leaf mildew (*Cladosporium fulvum*) was again the most serious disease of glass-house tomato crops. Spotted wilt (virus) was the most serious disease of tomatoes in the outdoor metropolitan crops. Canker (*Aplanobacter michiganense*) was widespread in tomato crops generally.

Sclerotium rolfsii and *Sclerotinia libertiana* affected many vegetable and ornamental crops; *S. rolfsii* was recorded on onions for the first time in this State.

FRUIT CROPS.

Black spot (*Phoma citricarpa*) seriously affected main crop Valencia oranges in coastal areas. This crop also was subject to unusual mould attack (*Penicillium* spp.) which also was recorded in a heavy second crop of oranges which set after breaking of the 1936-37 dry period. *Septoria depressa* spot of citrus was recorded from inland irrigation areas.

Powdery mildew (*Oidium* sp.) of grapes was unusually prevalent during a period of high humidity; shedding of berries and breakdown conditions in grapes appeared to be associated with low temperature and low soil moisture conditions respectively.

Black spot (*Venturia inaequalis*) was less serious than usual on apples. Freckle (*Cladosporium carpophilum*) occurred for the first time in many years on early maturing peach varieties; it was severe in untreated areas of later types. Rust (*Puccinia pruni-spinosae*) caused losses in coastal peaches and on unsprayed canning varieties of inland irrigation areas.

A dieback condition in cherries caused extensive losses. Banana bunchy top (virus) is kept under control as a result of constant vigilance. "Rubbery" bananas of hard unpalatable texture were associated apparently with production areas of forest rather than "scrub" soils and with the incidence of low temperatures during later stages of development. Leaf Spot (*Cercospora musae*) followed incidence of prolonged summer rains in north coastal areas and resulted in severe defoliation, with consequent loss of size and quality in bananas. A pitted condition superficially resembling anthracnose developed extensively in bananas and appeared to be associated with chilling of winter grown fruit.

OTHER CROPS.

Ornamentals grown for market were subjected to serious losses by disease, e.g., Nematode (*Heterodera marioni*), *Fusarium* root rot and Bud rot (*Sporotrichum poae*) on carnations, Root rot (*Fusarium conglutinans callistephi*) on asters, Tomato spotted wilt (virus) and Crown rot (*Phytophthora cryptogea*) on Iceland poppies (*Papaver nudicaule*) and Scab (*Sphaceloma violae*) on violets.

Eritrea: *Locusta migratoria migratorioides* *

During the month of November 1938 many hoppers of the African migratory locust (*Locusta migratoria migratorioides*) were observed, chiefly in the 4th and 5th stages.

The starting point of the invasions was changed from the low-lying western plains to certain zones of the Tigrai. This locust is apparently extremely resistant to the cold night winds and goes to the high plateaux only during the warmest hours of the day.

It is said that an outbreak area has been found in Alalà, along the Gasc river.

Other hopper bands of less importance have been observed on the Rore, in the Hamasien territory and in the Acchelè Guzai.

The young adults have not yet moved in any definite direction; it has been noticed that a swarm coming from a given point may hover over a region and finally return to their starting-point. Such swarms, however, usually make for districts where fresh pasturage or standing crops may be found.

A swarm from Hamasien hovered over Ghinda and then descended towards the Damas plain whence, some days later, it returned to the plains at medium altitude, where it still remains. In the middle of the month there was a similar occurrence in Dancalia, since when no further reports have been received. A supervision and control service has been established along the Gasc river, baits being chiefly used and – in exceptional cases – flame-throwers. Much damage to crops has been averted by the prompt action of the staff engaged in the campaign.

Mozambique: Locusts †

During September 1938 no movements of locusts were registered in any of the three provinces of the Colony.

Southern Rhodesia: Locust Invasion, 1932-1938 §**Monthly Report No. 71. October, 1938.**

During October numerous flying swarms of the red locust (*Nomadacris septemfasciata*, Serv.) have been reported. Most districts in the Colony have reported swarms except those in the extreme south and north west. Fifteen districts in Mashonaland have been invaded, namely: Charter, Chilimanzi, Gutu, Hartley, Inyanga, Lomagundi, Makoni, Mrewa, Marandellas, Mazoe, Melsetter,

* Communication from Dr. LUIGI M. BOLOGNA, Director of the Agricultural Office Asmara, transmitted to the Institute by the Government of the Colony.

† Communication from M. ALBERTO COUTINHO SARAIVA, Director of the Section of Entomology Lourenço Marques, Mozambique.

§ Communication from Mr. J. K. CHORLEY, Acting Chief Entomologist, Agricultural Laboratory, Department of Agriculture, Salisbury, Southern Rhodesia.

Ndanga, Salisbury, Umtali, and Victoria, and seven districts in Matábeleland, namely: Bulalima-Mangwe, Gwanda, Gwelo, Insiza, Matobo, Nyamandhlovu, and Sebungwe.

The eastern districts have been heavily invaded by swarms from Portuguese East Africa.

Considerable damage has been caused to early grazing and some wheat crops have suffered.

New spring foliage on indigenous trees has been badly damaged.

The direction of flight has been variable.

Switzerland: Outbreak of *Laspeyresia* (*Cydia*) *molesta* and *Ceresa bubalus* in the Country *

The oriental peach moth (*Laspeyresia* [*Cydia*] *molesta* Busck), which is found throughout north Italy and, in France, in the Alpes-Maritimes and the Var, was discovered in Switzerland in 1937, in several localities of Ticino and in an orchard near Lausanne. It has probably penetrated into Ticino by natural migration from the neighbouring Italian districts which have been infested since 1934. At Lausanne, the insect was introduced by trade movements.

In 1938, the oriental peach moth was rare in Ticino, and the Lausanne focus did not spread; only a single larva was found there.

In the course of September 1938, the American membracid *Ceresa bubalus* Fab. was discovered in several orchards in central Valais, especially at Saxon and Sion where considerable damage was done on apple and pear trees. It would seem that the introduction was earlier than 1934.

LEGISLATIVE AND ADMINISTRATIVE MEASURES

Germany. — A Decree of August 25, 1938 on the use of ethylene oxide combines in a single text the provisions of the Order of February 26, 1932 and the amendments of this Order introduced by the Decrees of October 10, 1934, October 19, 1935 and May 20, 1936 [see this *Bulletin*, 1932, No. 6, p. 99; 1935, No. 4, p. 85; 1936, No. 2, p. 31, and No. 8, p. 173].

Additions have been made to these provisions, rendering them clearer and more effective.

The precautionary measures intended to prevent the occurrence of fires and explosions have been made more stringent. It is enacted that on premises that have to be disinfected by means of ethylene oxide and on neighbouring premises, stoves are to be put out 24 hours at least before beginning fumigation.

* Communication from the official correspondent of the Institute, Dr. H. FAES, Director of the Federal Experiment Station of Vine and Fruit Trees, Lausanne, Switzerland,

The use of ethylene oxide is prohibited in old houses where, owing to the condition of the structure, the rooms which are to be disinfected cannot be hermetically sealed.

Fumigation of buildings that are not isolated and of premises in inhabited buildings must be begun after 1 p. m. on the day appointed.

Permission to install movable ethylene oxide disinfection chambers will be given only if the chambers in question are to be installed inside uninhabited buildings or in the open air at a distance of at least 5 m. from any inhabited dwelling. Their construction must allow of effective heating and ventilation involving no risk to the neighbourhood. (*Amtliche Pflanzenschutzbestimmungen*, Berlin, 1. Oktober 1938, Bd. X, Nr. 7, S. 172-174).

*** On August 9, 1938 supplementary instructions were issued for the application of the Decree of July 1, 1938 relating to control of the musk rat [*Fiber zibeticus*] [see this *Bulletin*, 1938, No. 12, p. 270]. (*Ibid.*, S. 175-176).

Germany (Brunswick). — By Decree of July 4, 1938 relative to the destruction of yellow weed (*Galinsoga parviflora*), the control of this plant is made compulsory for all proprietors, occupants and holders of any land.

The plants of *G. parviflora* must be uprooted and destroyed on the spot by burning or by digging well into the ground. Any other system of destruction is forbidden, especially that of leaving the uprooted plants in the fields or roads, or throwing them into ditches, streams, on to manure heaps, etc.

This weed should be destroyed every year on all fields before July 1, exception being made for cereal fields, where operations will be carried out immediately after harvesting.

Plants which reappear after this preliminary clearing operation must be destroyed as soon as seen and before flowers are formed. They may be destroyed by any means which ensure definite killing off of growth.

Destruction operations will be under the control of the Plant Protection Service, police authorities and mayors. The last-named may set up Committees of two or three members for this purpose. The first inspection will take place after July 1 and at the latest July 15; further inspections will be made at intervals of about four weeks. (*Amtliche Pflanzenschutzbestimmungen*, Berlin, 1. August 1938, Bd. X, Nr. 6, S. 127-128).

Germany (Prussia). — By Decree of October 31, 1938 on the virus diseases of potatoes, planting of peach and apricot trees is prohibited in certain districts in Pomerania.

Any peach or apricot tree found to be withering and with no promise of fruit must be removed before March 15.

Peach and apricot trees are to be treated, during mild dry days between December and February, with an application of carbolineum.

Peach and apricot trees must be watched for the appearance of the aphid *Myzodes (Myzus) persicae*. Trees which, in spite of the treatment, are found to be infested by aphides, must be sprayed, immediately before or after flowering

with a preparation recognized as effective against aphides by the Central Plant Protection Service.

Sprays must be made in accordance with the instructions of Plant Protection Service.

The administrative authority may arrange for spraying to be done directly by the Plant Protection Service at the expense of the person concerned who is obliged to render assistance. (*Amtliche Pflanzenschutzbestimmungen*, Berlin, 1. Dezember 1938, Bd. X, Nr. 8, S. 221-222).

Argentine Republic. — By Decree No. 13.800 October 5, 1938, article 8 of the Decree No. 116.277 of October 9, 1937 is amended. The article now reads as follows: 'Certified seed potatoes imported into Argentina must be transported in the packing material in which they entered the country; a new label shall be affixed with the words: 'Semilla certificada de papa - Importada'.

'The new label will be affixed at the National Potato Market, if the goods enter by the port of Buenos Aires, and by the staff of the Plant Health Department, responsible for plant inspection at ports, if they enter by the port of Rio Gallegos'. (*Boletín Oficial de la República Argentina*, Buenos Aires, 31 de octubre de 1939, año XLVI, núm. 13.280, pág. 14.714).

Australia (New South Wales) * — A Proclamation of August 31, 1938 indicates the plants declared to be noxious plants in the different portions of the State.

Australia (Queensland). — By Notification of October 19, 1938, Indian Hemp (*Cannabis sativa*), Opium Poppy (*Papaver somniferum*), and Coca Leaf (*Erythroxylum coca*) have been declared to be noxious weeds or plants in the State of Queensland. (*Queensland Government Gazette*, Brisbane, 22nd October, 1938, Vol. CLI, No. 94, p. 1706).

Brazil. — By Decree-Law No. 780 of October 12, 1938, an Experiment Station of Insecticidal Plants (Estação Experimental de Plantas Entomotóxicas), placed under the Ministry of Agriculture, was been set up. This Station is to undertake study, experimental trials and propagation of plants with insecticidal properties, especially those belonging to the genus *Lonchocarpus* (timbós), with a view to their utilization in control measures against crop pests. (*Diário Oficial*, Seção I, [Rio de Janeiro], 14 de outubro de 1938, anno LXXVII, n. 238, pag. 20665).

Belgian Congo. — Ordinance No. 59/Agri, of April 19, 1938 relative to the cultivation, purchase of and trade in cotton, lays down, *inter alia*, that the Chief of Province is authorized to prohibit sowing cottonseed other than that supplied, or the quality of which has been verified by himself.

* Communication from the Prime Minister's Department, Canberra, Australia to the International Institute of Agriculture.

The introduction of cottonseed into a province by private individuals is prohibited, unless previously authorized by the Chief of Province.

Whosoever cultivates or causes cotton to be cultivated is required, on the lands in question, to:—

(1) Top or destroy or have topped or destroyed according to the methods and at the times indicated by the Chief of Province, the plants, bolls and plant waste affected with diseases or pests which by the latter may specify.

(2) Uproot and burn cultivated cotton plants, collect and burn the bolls; these operations should be carried out immediately after harvesting and at the latest two months before the date determined for sowing.

The Chief of Province, on the proposal of the Chief of the Provincial Service of Agriculture and Colonization or of a qualified expert, and by decision posted up in the chief towns of the zones in question, may prohibit cotton cultivation in any given region for a whole season, with a view to eliminating any disease existing in this region or to checking the propagation of a disease infesting another zone. This prohibition may be renewed from year to year if necessary.

The Chief of Province, may also as a preventive measure, order the destruction of healthy plantations in an area open to cotton cultivation; against compensation representing the value of the plantation at the time of destruction, the amount being decided by the Chief of Province.

The Territorial Administrator, on the proposal of the Chief of the Provincial Service of Agriculture and Colonization or of a qualified specialist, may, with a view to preventing the spread of infestation, order immediate destruction by burning of cotton plants or plants in the field and of seed or harvested but unginned cotton affected by diseases or pests which it is not possible to control effectively by any other means.

If considered justified, the Chief of Province may in the above-mentioned cases grant to the party entitled a compensation equivalent at most to the value at the time of destruction of the plants, seeds and cotton burnt, and in the condition at the time when destruction was ordered.

The officers of or acting for the Territorial Service and the Agricultural Service may, with a view to studying the condition of cotton crops, at any time, even at night, inspect, fields planted with cotton whoever the proprietors.

All Territorial Administrators are required to inform without delay the Administrators of adjoining zones of the presence of any cotton diseases caused by insects or fungi, which have been officially reported to him by the Chief of the Provincial Service of Agriculture and Colonization or by a qualified expert.

All holders of unginned cotton are obliged to declare the quantities of this cotton and where stored.

This cotton should be ginned before the April 1 following for the districts south of the Equator, and before November 1 for the districts north of the Equator. After this date, the Chief of Province, on the proposal of an officer of the Service of Agriculture and Colonization, may order the burning of unginned cotton.

If there is a threat of disease, the time allowed before ginning may be reduced by the Chief of Province.

Besides withdrawal of the buying licence granted by the Territorial Administrator, penalties may be inflicted on whosoever has:—

(a) Purchased unginned cotton grown in the Colony by natives of the Congo or other African countries elsewhere than at the cotton markets or at the cotton-gins;

(b) Outside the above specified localities or outside the period fixed for the buying season, offered or caused to be offered to natives to buy their cotton;

(c) Before the buying season, offered or agreed to store native cotton and to practise the system of advanced payments on the crop.

All the seeds from cotton ginned by hand should be destroyed by fire or by any other means authorized by the Chief of Province. This operation will be carried out from day to day and, at the latest, within 24 hours following ginning, by and under the responsibility of the proprietor or lessee of the gins. The sale and purchase of these seeds are prohibited under penalty of a fine of from 100 to 1000 francs and confiscation of the seed.

Unless authorized by the Chief of Province, it is prohibited to transport or have transported unginned cotton bought from the natives from one zone to another.

The Chief of Province may order that the seed of cotton treated at the cotton-gin and requisitioned by him or by the Territorial Administrator, shall be disinfected within the period and in the manner determined by the said Chief of Province.

The Chief of Province may also authorize the export of these seeds outside the limits of the zone of operation of the cotton gin or the province. (*Bulletin Administratif du Congo belge*, Léopoldville, 25 avril 1938, 27^{me} année, n° 8, p. 296-318).

France. — Two Decrees of October 28, 1938 modify the Decree of October 13, 1934 relative to the award of grants to the victims of agricultural disasters (hurricanes, floods, frosts or hail). (*Bulletin de l'Office de Renseignements agricoles*, Paris, 15 novembre 1938, année 1938, n° 22, p. 582-583).

Italy. — Royal Decree-Law No. 1622 of September 5, 1938, made the following provisions:—

A credit of 1,500,000 lire is granted to the Ministry of Agriculture and Forests for each financial year from 1938-39 to 1941-42, for the payment to citrus fruit growers of a contribution towards any expense they shall incur in connection with the campaign against the 'mal secco' [*Deuterophoma tracheiphila*] in Sicily; and the reconstitution of plantations destroyed or infected during the seasons 1938-39 to 1941-42.

The maximum of 300,000 lire fixed by Royal Decree-Law No. 115 of January 18, 1937, which came into force under Law No. 576 of April 3, 1937 [see this *Bulletin*, 1937, No. 4, pp. 70-71, and No. 7, pp. 155, 156] for payment to

citrus fruit growers of a Government contribution towards the expenses incurred for the 'mal secco' campaign in Sicily and the reconstitution of plantations destroyed or infected during the season 1935-36, has been raised to 450,000 lire.

The Ministry of Agriculture and Forests is authorized to contribute toward the expenses incurred by farmers for the campaign against scale insects and other animal and plant parasites of citrus trees and fruits during the seasons 1939-1948.

For this purpose the Ministry in its estimated expenditure has allocated a credit of 4 million lire for the financial year 1938-39 and further credits of 4.5 million lire for each of the financial years from 1939-40 to 1947-48.

The Ministry of Agriculture and Forests is further authorized to make grants:—

(a) Towards the expense reconstituting plantations of: peach trees destroyed or infested by 'moria'; pear and plum trees destroyed or infested by *Parlatoria*, almond trees destroyed or infested by root rot or 'verde secco', and filbert trees destroyed or infested by 'verme del legno', on condition that such reconstitution shall be effected subsequent to the issue of the present Decree and not later than the season 1939-40;

(b) Towards the expense of reconstituting chestnut plantations destroyed or infested by ink disease [*Phytophthora cambivora*], provided that it shall be carried out after the publication of the present Decree and not later than the season 1947-48;

(c) Towards the expenses of the campaign against animal and plant parasites of peach, apple, pear, chestnut, cherry, plum, apricot and almond trees and fruit, provided it is carried out after the issue of the present Decree and not later than the season 1947-48;

(d) To syndicates of fruit-growers set up in conformity with Law No. 897 of June 18, 1931 [see the *Bulletin*, 1931, No. 9, pp. 166-167] with object of ensuring the whole or partial payment of interest on loans that shall have been necessary for the campaign prescribed for the seasons 1938-39 and 1939-40, against animal and plant parasites of peach, apple, pear, apricot and almond trees and fruit;

(e) To syndicates for fruit-growing in provinces where the production of dried figs is of great importance, as contributions towards expenses incurred for the construction of plant for the disinfection of dried figs and the purchase of cases for the disinfection and conservation of the product on farms;

(f) Towards expenses incurred for the disinfection of dried figs after the issue of the present Decree and not later than the season 1947-48;

(g) Towards the expenses of organizing and launching syndicates for fruit-growing, established after 1936 in conformity with the Law No. 987 of June 18, 1931.

For the purpose of providing the amount required for the above-mentioned contributions the Ministry of Agriculture and Forests has allotted the following credits:—

(1) In respect of par. (a): 402,500 lire for each of the years 1938-39 and 1939-40;

- (2) In respect of par. (b): 280,000 lire for each year from 1938-39 to 1947-48;
- (3) In respect of par. (c): 2,955,000 lire for each year from 1938-39 to 1947-48;
- (4) In respect of par (d): 455,000 lire for the years 1938-39 and 1939-40;
- (5) In respect of par. (e): 210,000 lire for the year 1938-39;
- (6) In respect of par. (f): 300,000 lire for each year from 1938-39 to 1947-48;
- (7) In respect of par. (g): 820,000 lire for the year 1938-39.

The Minister of Agriculture and Forests is authorized to engage technical specialists in plant protection on yearly contracts. These will not form part of the permanent staff. (*Gazzetta Ufficiale del Regno d'Italia*, Roma, 24 ottobre 1938, anno 79^o, n. 244, pp. 4426-4427).

* * Ministerial Decree of October 13, 1938 authorizes, subject to certain conditions, the shooting and capture of sparrows in the Muratella-Maccarese zone of Rome Province in order to protect crops. (*Ibid.*, 18 ottobre 1938, n. 239, p. 4352).

* * By Ministerial Decree of October 19, 1938, the territory of the commune of Giano dell'Umbria has been declared infested with grape phylloxera. (*Ibid.*, 12 novembre 1938, n. 258, p. 4661).

* * By three Ministerial Decrees of October 19, 1938, the communes of Padula and Pontecagnano in the Province of Salerno, Capena in the Province of Rome, Montalto delle Marche and Rocca di Fluvione in the Province of Ascoli Piceno have been declared infested with grape phylloxera. (*Ibid.*, 17 novembre 1938, n. 262, p. 4761).

* * By Ministerial Decree of December 20, 1938, the application of the exchange duty. at the reduced rate of 0.75 lire per cent., is extended, as from January 15, 1939, to the parasiticide commercially sold as 'Lazio'. (*Ibid.*, 7 gennaio 1939, anno 80^o, n. 5, p. 82).

* * The Ministry of Agriculture and Forests has published the list of the communes in the Kingdom declared to be infested with grape phylloxera or suspected of being so infested on December 31, 1938. (*Bolletino Ufficiale del Ministero dell'Agricoltura e delle Foreste*, Roma, 16 dicembre 1938, anno X, n. 24, pp. 2314-2332)..

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 Chapter IV. The more important insect pests and diseases found attacking economic plants:—
 A. Coconut.
 B. Bananas.
 C. Citrus.
 D. Yams.
 E. Sweet potatoes.
 F. Sugar cane.
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As far as possible, the weeds are classified according to a biological standard. The illustrations were made from living species and are in natural colour. The drawings were carried out according to the directions of the A. and under his personal control.

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Prof. ALESSANDRO BRIZI, *Segretario generale dell'Istituto, Direttore responsabile.*

INTERNATIONAL BULLETIN OF PLANT PROTECTION

DISCOVERIES AND CURRENT EVENTS *

Italian East Africa: *Locusta migratoria migratorioides* in Eritrea and in Amhara †

Eritrea. During December 1938, further hatchings were noted in the middle zones of Tigray and the west low-lying plain.

During the first fortnight, swarms were not so numerous as in the preceding months, but towards the end of December they increased in number and size. The zones most seriously affected are still chiefly those of western Tigray, and to a lesser extent that of Macallé.

A swarm which was reported in the Arafali zone (eastern low-lying plain) and which had commenced egg-laying was entirely destroyed.

In agreement with the General Government of Italian East Africa and with that of the Anglo-Egyptian Sudan, an officer of the Agricultural Bureau of Eritrea was sent to the eastern low-lying plain for the purpose of inspecting the entire coastal zone with a view to ascertaining if there was any possibility of Eritrea being invaded by the desert locust (*Schistocerca gregaria*).

Amhara. The situation is more serious in this region both as regards number of swarms reported and the damage caused to the crops. Here also the species in question is the African migratory locust (*Locusta migratoria migratorioides*).

Most of the districts attacked report that the locusts came from Eritrea across Tacazzé and part of the Anglo-Egyptian Sudan.

As a rule, these swarms have no definite direction; it is noted that they tend to follow a circular movement, and that on settling, they only remain on the ground for brief periods.

Tana is one of the zones most severely attacked, particularly the Gorgorà district.

Control measures. The usual systems of threshing and ditches were employed; when the hoppers had reached the final moulting stage, poison bait gave good results.

* Under this and the third heading the countries are arranged in French alphabetical order.

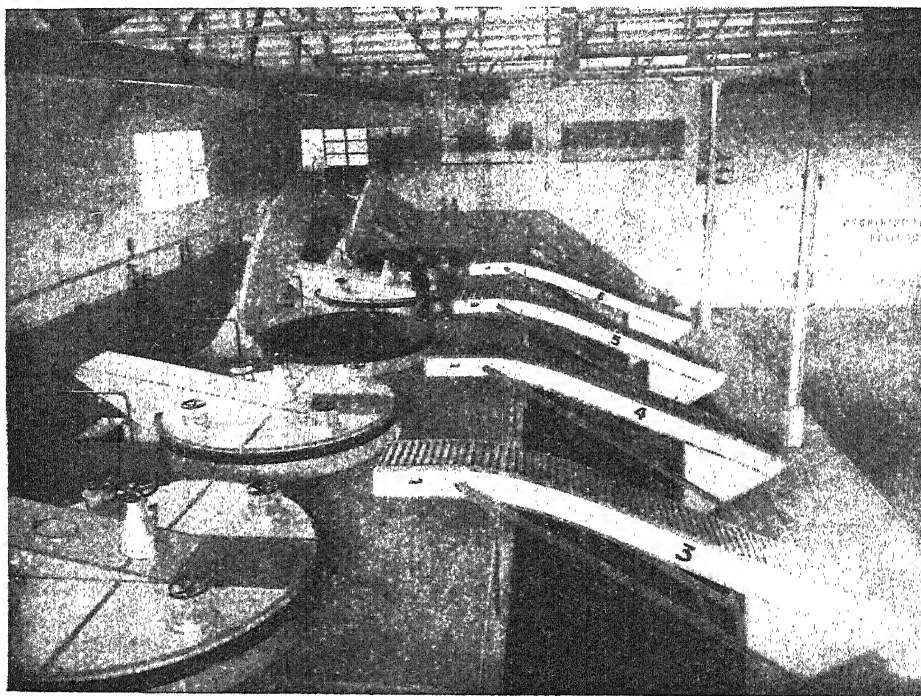
† Communication from Dr. LUIGI M. BOLOGNA, Chief of the Agricultural Bureau of Eritrea, Asmara, transmitted to the Institute by the Government of the Colony.

In Tigrai, as a result of the active assistance of the people, thousands of sacks of Locusts were collected at night.

In Gasc, in the Alalà area, ploughing was extensively carried out in order to destroy egg-pods.

Argentine Republic: A Up-to-Date Equipment for Plant Fumigation in the Port of Buenos Aires *

The installation in the port of Buenos Aires of newly equipped plant disinfection chambers, which was authorized by a Decree of December 9, 1936, is now completed. This important work was carried out by the ' Dirección de Sanidad



General view of plant disinfection equipment

Vegetal' of the Ministry of Agriculture in conjunction with the Architectural Department of the Ministry of Public Works, the result being a thoroughly up-to-date installation comprising all the latest technical refinements.

This new plant is divided into three independent parts and consists of 6 vertical cylindrical autoclaves made of steel, S. M. 44, with a diameter of 3.50

* Communication from the official correspondent of the Institute, Mr. Juan B. MARCHEIONATTO, Agricultural Engineer, Director of 'Sanidad Vegetal', Ministry of Agriculture, Buenos Aires, Argentine Republic.

metres. Each autoclave has a content of 50 cubic metres, which gives a total content of 300 cubic metres for each disinfection. As many as 4 operations can be carried out daily so that, if necessary, a total of 1,200 cubic metres of vegetable matter can be dealt with in one day. Each autoclave is provided with a movable platform for the reception and discharge of the goods, worked by hydraulic pressure. This pressure is regulated by a revolving oil pump which also serves to open and close the cover of the autoclave.

The apparatus is supplied with 3 vacuum pumps which circulate the disinfectant in the autoclaves; 6 powerful ventilators which disperse any vestiges of gas that may remain in the goods after disinfection; and 6 electric carriers of variable gradients for the reception and discharge of the goods. To facilitate the handling of heavy loads there is an electric crane capable of bearing a weight of 5,000 kg.

The disinfection plant is completed by a laboratory fitted with a small autoclave of a content of 2 cubic metres, and various control apparatus.

The disinfectants most generally used are carbon bisulphide and hydrocyanic acid, the latter either in a liquid state or combined with inert matter. In each case it is generated by reaction, with entirely separate installations.

The serious danger of explosion in the case of carbon bisulphide is neutralized by making use of this disinfectant in a vacuum with the addition of carbon dioxide, which renders it inexplusive. When the disinfection process is completed, the gases are expelled from the autoclave by means of compressors, being forced up a chimney of armoured cement, 30 metres high.

The methods adopted in the disinfection plant described above are the latest and most effective known, while its output capacity is the largest in the world.

These chambers are in a specially constructed building covering an area of 1,600 sq. metres and adjoining the premises for the Port Inspection of Plants in the Federal Capital.

Australia: Aphid Vectors of the Virus of Woodiness Disease of Passion Fruit in New South Wales *

Woodiness or bullet disease of passion fruit (*Passiflora edulis*) is a virus disease which has been described in detail by the author on completion of mechanical infection experiments in 1928.

Now it has been demonstrated that the woodiness virus may be transmitted by *Myzus persicae*, *Macrosiphum solanifolii* and by two other aphids which belong to the group in which are included *Aphis rumicis*, *A. medicaginis*, etc., and in which there is considerable divergence of opinion as to the synonymy of the species concerned. The two dark aphid vectors of woodiness are characterised and designated as *Aphis* sp. A and *Aphis* sp. B.

A paper of the author in collaboration with Mr. N. S. Noble on this subject is expected to be published in the near future.

* Communication from the official correspondent of the Institute, Dr. R. J. NOBLE, Biologist, Department of Agriculture, Sydney, New South Wales, Australia.

Mozambique: Red Locust *

During October, 1938, swarms of the red locust (*Nomadacris septemfasciata*) were reported in the districts of Tete and Quelimane, Zambezi Province. Some damage was caused to sugar cane and cotton crops in the Quelimane district.

Southern Rhodesia: Locust Invasion, 1932-38 †

Monthly Report No. 72. November, 1938.

Flying swarms of the red locust (*Nomadacris septemfasciata*, Serv.) were reported during the month from nineteen districts in the Colony as follows:—

Mashonaland:—

Bikita, Charter, Chilimanzi, Darwin, Hartley, Makoni, Marandellas, Mtoko, Mazoe, Melssetter, Victoria, and Umtali.

Matabeleland:—

Belingwe, Bulalima-Mangwe, Bulawayo, Chibi, Insiza, and Nyamadhlovu.

A number of swarms have flown south from Matabeleland into the Northern Transvaal and Bechuanaland. Some of the swarms are assuming the mating colouration (turning yellowish) and the ovaries are developing. Two unconfirmed reports were received at the end of the month that egg laying had taken place though it is considered that egg-laying will not become general for another two or three weeks.

Locust birds, storks and kites, have been seen following many of the swarms.

Some damage to gum plantations, wheat, early maize, vegetable gardens and grazing has occurred.

As few reports have been received and many of the swarms are small, the coming hopper outbreak may be similar to last year's, i. e. on a fairly small scale.

Italian Somaliland: Locusts §

No locusts were reported in the Colony during December, 1938.

* Communication from Mr. ALBERTO COUTINHO SARAIVA, Chief of the Section of Entomology, Lourenço Marques, transmitted to the Institute by the 'República Técnica de Agricultura' of Mozambique Colony.

† Communication from Mr. J. K. CHORLEY, Acting Chief Entomologist, Agricultural Laboratory, Department of Agriculture, Salisbury, Southern Rhodesia.

§ Communication from Dr. MARTINO VIDOTTO, Acting Chief of the Agricultural Services of Italian Somaliland, Mogadiscio, transmitted to the Institute by the Government of the Colony.

VARIOUS QUESTIONS

Standard Method of Control of the Colorado Beetle (*Leptinotarsa decemlineata*) for the Year 1939.

The IVth Conference of the International Committee for the mutual study of the control of the Colorado beetle met at Wageningen, the Netherlands on February 2, 3 and 4, 1939, with the participation of the delegates of Germany, England, Belgium, France, the International Institute of Agriculture, Jersey (Channel Islands), Latvia, Luxemburg, the Netherlands, Poland, Switzerland and Czechoslovakia.

The report of the Conference will be published shortly; meanwhile, we reproduce herewith, in view of its topical interest, the text of the standard method of control of the Colorado beetle, adopted by the Conference:—

I.

For areas with infrequent foci, not attached, the International Committee for the mutual study of the control of the Colorado beetle advocates the following measures:—

(A) Patrolling.

In a region contaminated or suspected of infestation patrolling should be intensified from the time the soil temperature exceeds 10° C., the optimum temperature for the emerging of the adults being 14-15° C. Such patrolling should be extended to areas cultivated with potatoes, egg-plants, tomatoes and all cultivated or wild Solanaceae, particularly bittersweet. As soon as the fine days begin, patrolling should be made of all the fields in the locality, particularly where the foliage is most developed. Patrolling becomes all the more necessary when the temperature rises to 20° C. or over during several days.

Patrolling is particularly indicated in the direction of the winds prevailing during the hottest hours of the day (10 a. m. to 3 p. m.).

(B) Discovery of the Insect.

- (1) Immediate collection and destruction on the spot.
- (2) Demarcation of the focus.
- (3) Removal of the haulm which should be carefully collected in the centre of the focus.
- (4) Breaking up of the soil and careful search for insects by sieving the soil.

(5) Treatment of the soil by injection of carbon disulphide (a minimum of 100 grams per sq. metre), or by spraying with benzol or petroleum (5 litres per m²).

(6) Distribution of the haulm in the focus.

(7) Repeated treatment of the soil and the haulm with the same products.

Operations (3) to (7) may be substituted by the following:—

(3) Burial of the haulm on the spot at a minimum depth of 60 cm. and spraying with benzol or petroleum.

(4) Sieving of the soil as above.

(5) Treatment of the soil as above.

(8) Immediate treatment of the foliage with an insecticide indicated by the technical Service (such as diplumbic arsenate or calcium arsenate) on all potato fields within a radius of at least 500 metres. Treatment to be repeated, when necessary, two to four weeks later. Eventually, a third treatment.

(9) Inspection and patrolling will be carefully continued after the treatment.

It is recommended to retain the green foliage as late as possible into the autumn and to replant potatoes as early as possible in the spring on the foci to serve as plant-traps.

II.

When infestation has become widespread, the Committee recommends the application of the following measures:—

Extensive prophylaxis by treating all potato crops with an insecticide of which the effect is immediate and lasts for at least 15 days. These treatments will be carried out in the areas and during the periods where invasion is feared; a poison insecticide should be used: diplumbic arsenate or calcium arsenate.

Spraying should be carried out in increasing quantities up to 700-1200 litres per hectare, according to the extent of foliage and the apparatus employed.

Also, to obtain an even distribution of the substance, products which do not easily form a deposit are necessary. The wash should remain homogeneous throughout the period of spraying, usually carried out by means of an apparatus with preliminary pressure.

As however, treatment cannot be restricted to one chemical compound only, products which do not correspond to the requirements established by the competent official services may be utilized, provided they pass a biological test which proves that they are as effective (immediate and persistent action) as the standard product.

Tests for proving efficacy will be tried out on larvae at the beginning of the fourth stage, and in a sufficiently warm atmosphere (temperature over 15° C during the day).

Curative treatments may be carried out during the course of the season supplementing the preventive measures.

If near market crops or in any other circumstances when the use of an arsenical preparation is not practicable or advisable, contact insecticides (such as rotenone) may be employed. These insecticides should kill off larvae in under twelve hours.

LEGISLATIVE AND ADMINISTRATIVE MEASURES

Belgium * — By Royal Decree of October 5, 1938, the proprietors, farmers or occupiers, are required to control by every possible means, the diseases (fungi, etc) and pests (insects, spiders, etc.) found on their hop crops.

Ministerial Decree will regulate all measures of control considered effective.

If those concerned are unable to employ effective control measures or if these measures are found insufficient, the burgomaster may order spraying of the hop crops in his commune to be carried out officially.

The Governor has the same authority for the whole province and also for any area in the province he may indicate.

United States of America. — For carrying out the purposes of and for expenditures authorized under the public resolution entitled 'Joint resolution making funds available for the control of incipient or emergency outbreaks of insect pests or plant diseases, including grasshoppers [*Acrididae*], Mormon crickets [*Anabrus simplex*], and chinch bugs [*Blissus leucopterus*]', approved on April 6, 1937 [see this *Bulletin*, 1937, No. 8, p. 180], by public resolution approved on March 2, 1938 is appropriated, out of any money in the Treasury not otherwise appropriated, the sum of \$ 2,000,000, to be immediately available and to remain available until June 30, 1939. ([*Public Resolution - No. 81-75th Congress*]. [*Chapter 39-3d Session*], [*H. J. Res. 591*]. [Washington, D. C.], 1938, 1 p.).

* * A joint resolution approved on May 9, 1938 amends the aforesaid joint resolution approved on April 6, 1937. ([*Public Resolution - No. 91-75th Congress*]. [*Chapter 192-3d Session*]. [*S. J. Res. 256*], [Washington, D. C.], 1938, 1 p.).

* * An Act approved on May 23, 1938 provides for an investigation and report of losses resulting from the campaign for the eradication of the Mediterranean fruit fly [*Ceratitis capitata*] by the Department of Agriculture. ([*Public - No. 535-75th Congress*]. [*Chapter 260-3d Session*]. [*S. 842*], [Washington, D. C.], 1938, 1 p.).

* * The revision of the Notice of Quarantine No. 45, on account of the gypsy moth (*Porthetria dispar*) and brown-tail moth (*Nygmia phaeorrhoea* = *Euproctis chrysorrhoea*), and of the rules and regulations (eighth revision) supplemental to the said Notice of Quarantine has been approved on September 28, 1938 and is effective on September 29, 1938.

* Communication from the official correspondent of the Institute, Prof. F. MARCHAL, Director of the State Phytopathological Station, Gembloux, Belgium.

The principal changes in this revision are (1) the release from regulation of certain towns in Coos County, New Hampshire, and parts of the counties of Caledonia, Essex, Lamoille, and Rutland, Vermont; and (2) the transfer from lightly infested to generally infested area of part of Coos County, parts of the Maine counties of Franklin, Kennebec, Oxford, Penobscot, Somerset, and Waldo, and parts of the Vermont counties of Orange, Windham, and Windsor. The Notice of Quarantine as revised provides for modifications of its restrictions in accordance with facts as to pest risk found by the Chief of the Bureau of Entomology and Plant Quarantine and set forth in administrative instructions. (*B. E. P. Q.-Q.* 45, [Washington, D. C.], 1938, 9 pp.).

India. — A press communiqué dated June 23, 1938 informs that the Government of India have decided that the prohibitions and restrictions imposed on the imports of plants, cotton seed, etc., under the Destructive Insects and Pests Act, 1914, and the rules framed thereunder shall be applied to imports from Burma from the 1st August, 1938. (*Agriculture and Live-stock in India*, Delhi, November, 1938, Vol. VIII, Pt. VI, p. 716).

* * By Notification No. F. 46-21/38-A., dated July 26, 1938, in rule 6 of the Order published with the Notification No. F. 320/35-A., dated July 20, 1936 [see this *Bulletin*, 1937, No. 5, p. 94], after the words 'Potatoes shall not be imported into British India by sea' the words 'except from Burma' shall be inserted.

The first schedule to the said Order is also modified. (*Ibid.*).

French Indo-China. — By Decree of the High Commissioner at Annam, dated July 8, 1938, approved by the Governor General on the 29th of the same month, the boar is added to the list of wild animals and others detrimental to livestock and crops, the destruction and trapping of which is authorized at any period without permit and without any restriction as regards number. (*Journal Officiel de l'Indochine Française*, Hanoi, 10 août 1938, L^{ème} année, n° 64, p. 2861).

Italy. — With a view to protecting grain crops, Royal Decree-Law No. 1781 of November 24, 1938 authorizes the capture of sparrows during the sowing period and up to the end of March. (*Gazzetta Ufficiale del Regno d'Italia*, Roma, 30 novembre 1938, anno 79°, n. 273, p. 4940).

Morocco (French Zone of). — The Vizirial Order of October 24, 1938 (29 chaabane 1357), amending the Vizirial Order of May 9, 1933 (14 moharrem 1352) relating to the issue of health certificates for exported plants, parts of plants or plant products [see this *Bulletin*, 1933, No. 9, p. 207] provides for the issue of these certificates when the laws and regulations of the countries of destination require them. These documents will be issued only when application is made to the regional inspector of the Plant Protection Service. (*Bulletin Officiel*, Rabat, 23 décembre 1938, XXVII^e année, n°. 1365, p. 1712).

* * By Order of the Director of Economic Affairs, dated December 3, 1938, article 1 of the Order of the Director General of Agriculture, Trade and Land Settlement, of June 10, 1932 [see this *Bulletin*, 1932, No. 11, pp. 186-187] enacting measures for the destruction of the fruit fly (*Ceratitis capitata*), is amended as follows:—

‘The persons designated in article 4 of the Vizirial Order of April 18, 1932 [see this *Bulletin*, 1932, No. 7, pp. 112-113] must collect or cause to be collected, at least once a day, the fruits which have fallen to the ground from the trees, shrubs or plants hereinafter named’ (the remainder unchanged). (*Ibid.*, p. 1720).

* * An Order of the Director of Economic Affairs, dated December 13, 1938, modifies the area of activity of the ‘Association syndicale de lutte contre le pou rouge [*Chrysomphalus dictyospermi*] de Foucauld’ [see this *Bulletin*, 1937, No. 6, p. 126]. (*Ibid.*, p. 1721).

Mauritius. — The Proclamation No. 19 of September 8, 1938 declares that all pineapples planted on any land within the Colony are infested or suspected of being infested with the mealy bug *Pseudococcus brevipes* Ckll.

In consequence the owner or occupier of any such land shall carry out such written orders as may be issued by the Director of Agriculture from time to time for the treatment of the pest and shall uproot and remove or destroy or cause to be uprooted, removed or destroyed, or shall disinfect or cause to be disinfected or otherwise treated any pineapple plants which may be, or may become infested with the pest, if so ordered by him. (*Legal Supplement to the Official Gazette of the Mauritius Government*, No. 48 of September 10th, 1938).

New Zealand. — By Special Order made by the Bruce County Council on September 6, 1938, and published by the Minister of Agriculture on October 19, 1938, broom (*Cytisus scoparius*) and gorse (*Ulex europaeus*) are declared noxious weeds within the said County. (*The New Zealand Gazette*, Wellington, October 27, 1938, Numb. 78, p. 2281).

Southern Rhodesia. — By Government Notice No. 456 of September 16, 1938 the Importation of Plants Regulations published in Government Notice No. 462 of August 5, 1932 [see this *Bulletin*, 1933, No. 2, pp. 33-35] have been amended. (*Colony of Southern Rhodesia Government Gazette*, Salisbury, September 16, 1938, Vol. XVI, No. 37, p. 703).

* * By Government Notice No. 460 of same date it is notified that the Minister of Agriculture and Lands has fixed the 1st October, 1938, in respect of the year 1938 as the date by which all cotton plants throughout the Colony must have been destroyed in such manner as to prevent their continuing to grow. (*Ibid.*, p. 704).

Czechoslovakia. — Decree No. 138 of June 1938 modifies Decree No. 40 of February 25, 1938 [see this *Bulletin*, 1938, No. 6, p. 128] relative to measures for preventing the introduction of the Colorado beetle [*Leptinotarsa decemlineata*]. (*Sammlung der Gesetze und Verordnungen des čechoslovakischen Staates*, Prag, 4. Juli 1938, Jahrg. 1938, 45. Stück, S. 587).

Tunis. — A Decree of August 25, 1938 lists the vine-stocks to be used in the preliminary replacing of phylloxera-diseased vines. (*Bulletin de la Direction des Affaires Economiques*, Tunis, 1938, XLII^e année, 3^e trimestre 1938, n^o 174, p. 291-292).

Union of South Africa. — Proclamation No. 161 of August 4, 1938 specifies the plants considered noxious in the different regions of the Union. (*The Union of South Africa. Government Gazette*, Pretoria, 12 August, 1938, Vol. CXIII, No. 2556, pp. 434-436).

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[For the two earlier numbers of the VIth volume, see this *Bulletin*, 1937, No. 6, p. 130 and 1938, No. 11, p. 248.

The third number contains:—

c) Physikalische und chemische Prüfverfahren von G. Hilgendorff und W. Fischer (Fortsetzung und Schluss, S. 577-647).

This concludes the first section of volume VI.

The second section contains:

C. Biologische Bekämpfungsmassnahmen von Hans Sachtleben (S. [1] - 120).

Dritter Abschnitt: Die technische Mittel des Pflanzenschutzes.

A. Beizgeräte.

I. Nassbeizgeräte von E. Riehm (S. [121] - 132).

II. Trockenbeizgeräte von A. Winkelmann (S. 132-160).

B. Spritzgeräte von Hermann Zillig (S. 161-208)].

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INTERNATIONAL BULLETIN

OF PLANT PROTECTION

DISCOVERIES AND CURRENT EVENTS *

Italian East Africa: Locust Movements in 1938 †

Schistocerca gregaria. This species was not reported in any part of the territory. A temporary patrolling service was set up in the outbreak area of the Red Sea coastal zone.

Locusta migratoria migratorioides. During the January-June period, this locust was not seen in the territory.

From July 8 to 12, the first swarms were observed in Eritrea in the Om Ager area (western low-lying plain); the direction taken was southwest to northeast. Other swarms, nearing more and more the sexual maturity stage, followed in the Mareb region and in the bordering areas, coming from the Anglo-Egyptian Sudan and flying eastwards. The other regions of Italian East Africa were not yet invaded.

In August, the locusts were seen in Eritrea still further towards the east, and were found in the western low-lying plain, the tableland, and especially in the Adi Ugri area. Egg-laying and hatchings were reported in Tessenei, Barentù and Agordat. On August 30, the first swarms appeared in Amhara and Gallabat (zone bordering the Sudan), flying from north to south. These swarms were reported at Metemma on the 21st and at Matabià and Quorà a few days later.

During the first twenty days of September, swarms appeared throughout western Eritrea, flying from west to east. In the same period, swarms succeeded frequently in all the territories of Amhara to the west and north-west of Lake Tana. During the last ten days of September, swarms were found, chiefly in Eritrea. Heavy damage was done throughout the low-lying plain and on the western slopes between the 11th and 16th parallel.

On September 17, two swarms from the Sudan appeared in Beni Scianguil territory, directed towards the south. From this period, swarms were frequent, flying from north to south and from northwest to southeast.

All the regions situated to the east of the 39th meridian and to the south of the 9th parallel were still immune.

* Under this and the next heading the countries are arranged in French alphabetical order.

† Communication from the 'Ispettorato agrario' of the Government of Italian East Africa, Addis Ababa.

In October, hatchings were frequent in the zones of the western low-lying plain, Hamasien and Tigrai. Inspection and control operations were only partially effective in these regions, owing to the extent of the area, the sparse population, etc.

On the uplands of Eritrea very large swarms from the Sudan directed towards the east were still frequent. Some parasites of this locust were reported (*Trombidium* and *Empusa grylli*). Very severe damage was caused in all the zones attacked in Eritrea, to pasturage and crops about to be harvested.

From the first days of October, large swarms appeared in Uolcalt, and during the rest of the month, throughout the northeastern part of Amhara. On October 11, a swarm appeared in Semien and continued its flight towards Addi Arcai. Towards the end of the month invasions were very numerous and caused severe damage in the zones of Bircutan, Dembeà, Ismala Gheorghis and Gubba; the dominant directions were north to south and northwest to southeast.

On October 29, a fresh invasion took place in Asosa, in the Beni Scianguil, the swarms arriving from the north-west, and later in November, three other invasions occurred one after the other.

In November, the centre of attack in Eritrea shifted from the western low-lying plain towards Tigrai. The swarms had no definite direction and did not move far. Some swarms, which had crossed the upland towards the eastern depression of Dancalia, returned towards the west after a few days.

An outbreak area, reported in Gasch, was kept under control.

During November, swarms were reported throughout the territory of Amhara; the zones most severely affected were the environs of Lake Tana, Acefer, Cangià and Engiabarà. The first attacks in Lasta and in Uollo Jeggiù were reported. The most easterly swarms shifted from the Lake Haik zone towards the south along the depression of Combolcià Ciaffà up to Choa.

Egg-laying was reported in the western low-lying plain, in the Gondar zone in the Gurabba plain.

On November 22, numerous swarms invaded the Saio regions and continued southwards. During this period Lekemti was invaded and swarms continued across the Guma, Limmu and Gangerò territories; they appeared, in fact, during the following days in these regions and in Gimma. On December 9, Lekemti was again invaded.

From November 25 to the end of December, Gore was invaded almost daily by swarms mainly from the north and north-west; much of the crops was destroyed.

During December, the swarms were centred in Eritrea; in western Tigrai and Amhara, they shifted to the Uollo territory and centred at Lake Haik. The Uolcalt, Lasta and Gubba territories, however, continued to be invaded and further invasions from the Sudan along the frontier zone took place.

A swarm reported in the Arafali zone (eastern low-lying plain) which had begun egg-laying was destroyed by the control service.

Swarms from Lake Haik appeared in the Debra Sina and Amcober zone on December 7 and 8; some swarms continued their flight towards the eastern low-

lying plain, while the others took a southwesterly direction. During the second decade of December, swarms from the north-east directed towards the south-west were observed in Addis Alem, Ambò and Guder (Choa).

During the last decade of December, the central regions of Gimma were attacked on several occasions by swarms from the north, some of which remained in this zone taking different directions.

Finally, during the last days of December, the first invasions to the east of the lakes, in the Sidama and Arussi areas, were reported; at Dodolà (Gobba) in the Ticcio zone, the swarms came from the south.

In brief, at the end of December, 1938, swarms were observed in all the regions to the west of the 40th meridian; while invasions tended to diminish in gravity in Eritrea and in the north in general, they increased towards the south, tending eastwards. In 1938, no locusts were reported in Italian Somaliland or in eastern and central Harrar.

Control measures are being carried out systematically and with ample material in Eritrea. Poisoned bran was chiefly used, and to a lesser extent, flame throwers for direct control. In the other regions of Italian East Africa, control operations were not sufficiently organized to be effective, being carried out mainly by the natives under supervision.

Systematic locust control and investigation have now been introduced in Italian East Africa. The Agricultural Services are in charge and are assisted by the authorities and the people.

Palestine: Plant Diseases of Citrus *

In the following a preliminary list of diseases occurring on citrus plants in Palestine studied at the Division of Plant Pathology of the Agricultural Research Station, Rehovot, from 1923 to 1938 is given. The author was assisted in the determination and collection of these diseases by Dr. M. Chorin and Ing. G. Minz, Assistants of the above mentioned laboratory.

CITRUS AURANTIFOLIA SWINGLE VAR. DULCIS. — SWEET LIME.

<i>Alternaria</i> sp.	Leaf spot, black tip, associated with stem spot.
<i>Bacterium citriputeale</i> C. O. Smith.	Blast of twigs.
<i>Colletotrichum gloeosporioides</i> Penz.	Associated with citrus wither-tip and leaf spot.
<i>Deuterophoma tracheiphila</i> Petri.	'Mal secco'.
<i>Diplodia natalensis</i> Pole Evans.	Blight of branches.
<i>Fusarium</i> sp.	Damping off, root rot of trees.
<i>Ganoderma</i> sp.	Wood rot.

* Communication from the official correspondent of the Institute, Dr. I. REICHERT, Chief Plant Pathologist, Division of Plant Pathology, Agricultural Research Station, Rehovot, Palestine.

<i>Oospora</i> sp.	Fruit rot.
<i>Phoma</i> sp.	Seedling tip rot, on stubs.
<i>Phytophthora citrophthora</i> Smith and Smith.	Gummosis of trunk and collar.
<i>Phyt. citrophthora</i> Smith and Smith. }	Seedling, stem and tip blight.
<i>Phyt. parasitica</i> Dastur. }	Damping off, collar and root rot of trees.
<i>Rhizoctonia bataticola</i> (Taub.) Butl.	Damping off.
<i>R. solani</i> Kühn.	Damping off.
<i>Rhizoctonia</i> sp.	On leaves.
Sooty mould, undet.	
Collar rot, undet.	
Damping off, undet.	
Dry root rot, undet.	
? Ring blotch, undet.	
Albinism, non-parasitic.	On seedlings.
Bench rooting, non-parasitic.	On seedlings.
Chlorosis, undet.	
Frost injury.	On seedlings and trees.
Gum spot, undet.	On leaves.
Hot wind injury.	
Mottle leaf, undet.	
Stem spot, non-parasitic.	Seedlings.
Sun scald.	
Xyloporosis, non-parasitic.	
<i>Cuscuta monogyna</i> Vahl.	On young trees.
Nematodes, undet.	On seeds, on roots.
 <i>CITRUS AURANTIUM</i> L. — SOUR ORANGE.	
<i>Alternaria</i> sp.	Leaf spot, black tip, damping off, associated with stem spot.
<i>Bacterium citriputale</i> C. O. Smith.	Black pit and blast.
<i>Colletotrichum gloeosporioides</i> Penz.	Associated with wither-tip and 'mal secco'; leaf spot.
<i>Diplodia natalensis</i> Pole Evans.	Blight of branches.
<i>Fusarium</i> sp.	Damping off, collar and root rot.
<i>Macrosporium</i> sp.	Leaf spot.
<i>Oospora</i> sp.	Seed rot.
<i>Penicillium</i> sp.	Seed rot.
<i>Phytophthora citrophthora</i> Sm. and Sm. }	Seedling stem and tip blight.
<i>Phyt. parasitica</i> Dastur. }	Brown rot.
<i>Pythium</i> sp.	Damping off.
<i>Rhizoctonia bataticola</i> (Taub.) Butl.	Collar and root rot.
<i>R. solani</i> Kühn.	Damping off, root rot.
<i>Rhizoctonia</i> sp.	Collar rot.

Sclerotinia sp.
 Collar rot, undet.
 Damping off, undet.
 Dry root rot, undet.
 Gummosis, undet.
 Albinism, non-parasitic.
 Chlorosis, undet.
 Frost injury.
 Gum spot, undet.
 Hot wind injury.
 Mottle leaf.
 Stem spot, non-parasitic.
 Sun scald.
Cuscuta sp.

Graft rot.
 Gummosis.

Seedlings.

Seedlings and trees.
 Leaves.

CITRUS LIMONIA OSBECK. - LEMON.

Alternaria sp.

Bacterium citriputale C. O. Smith.
Botryosphaeria ribis Gros. and Dug.
Colletotrichum gloeosporioides Penz.

Associated with wither-tip; leaf spot,
 black fruit rot.

Blast and black pit.

Blight of branches.

Associated with wither-tip and 'mal secco'; leaf spot, anthracnose, fruit rot.

'Mal secco'.

Blight of branches.

Blight of branches.

Stem, collar and root rot; twig blight, gummosis, fruit rot.

Associated with *Colletotrichum* fruit rot.

Brown rot of fruit.

Root rot.

Twig dry rot.

Petioles.

Fruit.

Twigs.

Fruit.

Oospora sp.

Phytophthora sp.

Rhizoctonia bataticola (Taub.) Butl.

Sclerotinia sclerotiorum (Lib.) Mass.

Breakdown spot, non-parasitic.

Brown twig spot, non-parasitic.

Frost injury.

Gummosis, non-parasitic.

Gum spot, undet.

Hail spot.

Leaf spot, non-parasitic.

Leaf scorch, non-parasitic.

Leaf yellowing, non-parasitic.

Sun scald.

Wither-tip, undet.

Wind injury.

Cuscuta monogyna Vahl.

Branches.

Twigs.

CITRUS MAXIMA (BURM.) MERRILL. — PUMMELO.

Sclerotinia minor Jagger. Fruit rot.
 Fruit cracking, non-parasitic.
 Leaf roll, non-parasitic.

CITRUS MEDICA L. — CITRON (ETHROG).

Alternaria sp. Associated with blight.
Bacterium citriputale C. O. Smith. Blast.
Colletotrichum gloeosporioides Penz. Anthracnose, fruit rot.
Deuterophoma tracheiphila Petri. 'Mal secco'.
Diplodia natalensis Pole Evans. Blight of branches.
Fusarium sp. Stem rot (on sweet lemon).
Penicillium sp. Fruit rot.
 Breakdown (Nuksan), non-parasitic. Fruit.
 Endoxerosis, non-parasitic. Internal decline.
 Frost injury.
 Leaf yellowing, non-parasitic.
 Little leaf, undet.
 ? Ring blotch.

CITRUS NOBILIS LOUR. VAR. *DELICIOSA* SWINGLE. — MANDARIN.

Bacterium citriputale C. O. Smith. Blast.
Colletotrichum gloeosporioides Penz. Associated with citrus blast.
Penicillium digitatum Sacc. Green mould on fruit.
Phomopsis sp. Blight.
Pleospora sp. Fruit rot.
 Black tip, non-parasitic.
 Chlorosis, non-parasitic.
 Fruit cracking, non-parasitic.
 Leaf scorch, non-parasitic.
 Sun scald.
 Wind injury.

CITRUS PARADISI MACF. — GRAPEFRUIT.

Alternaria sp.
Bacterium citriputale C. O. Smith. Blast of twigs.
Botryosphaeria ribis Gros. and Dug. Blight of branches.
Botrytis sp. Grey mould of fruits.
Cladosporium sp. Sooty mould.
Colletotrichum gloeosporioides Penz. Associated with wither-tip; leaf spot.
Didymella sp. Leaf spot.
Diplodia natalensis Pole Evans. Blight of branches.
Fusarium sp. Stem, collar and root rot, fruit rot, gummosis.

<i>Leptothyrium pomi</i> (Mont. and Fr.) Sacc.	Fly speck on fruits.
<i>Penicillium digitatum</i> Sacc.	Green mould of fruits.
<i>Phytophthora citrophthora</i> Sm. and Sm.	Brown rot of fruits.
<i>Phyt. parasitica</i> Dastur.	Brown rot of fruits. Collar rot (on sour orange). Fruit rot. Leaf spot.
<i>Phytophthora</i> sp.	Root rot (on sour orange).
<i>Pleospora</i> sp.	Collar and root rot (on sour orange).
<i>Rhizoctonia bataticola</i> (Taub.) Butl.	Twig dry rot.
<i>R. solani</i> Kühn.	Fruit, leaves.
<i>Sclerotinia sclerotiorum</i> (Lib.) Mass.	Leaves.
Sooty mould, undet.	On sour orange and sweet lemon.
Black tip, undet.	Trunk, twigs.
Dry rot, undet.	Trees.
Gummosis, undet.	(On sour orange).
Leaf spot, undet.	Internal decline of fruits.
Wither-tip, undet.	Trees.
Bench rooting, non-parasitic.	Twigs, leaves.
Endoxerosis, non-parasitic.	Young trees.
Frost injury.	On fruit.
Fumigation injury.	Storage and cold storage blemishes.
Gum spot, undet.	On fruits.
Hot wind.	Storage and cold storage blemishes and on the trees.
June drop.	Leaves.
Little leaf.	
Mottle leaf, non-parasitic.	
Oleocellosis.	
Pitting.	
Puffing.	
Scald.	
Stigmanose.	
<i>Cuscuta monogyna</i> Vahl.	
<i>CITRUS SINENSIS</i> OSBECK. — ORANGE.	
<i>Alternaria</i> sp.	Leaf spot, fruit rot; associated with citrus wither-tip, leaf scorch, stem spot, and sun scald.
<i>Bacterium citriputale</i> C. O. Smith.	Blast, black pit.
<i>Botryosphaeria ribis</i> Gros. and Dug.	Blight.
<i>Capnodium citri</i> Penz.	Sooty mould.
<i>Colletotrichum gloeosporioides</i> Penz.	Anthraxnose, associated with blight; leaf spot; fruit rot.
<i>Cytosporina</i> sp.	Twig gumming (cambium brown).

<i>Diplodia natalensis</i> Pole Evans.	Gummosis, blight, and stem-end rot.
<i>D. warburgiana</i> Reichert.	Blight of twigs.
<i>Dothiorella gregaria</i> Sacc. (?)	Blight of branches.
<i>Fusarium</i> sp.	Blight, trunk and collar rot; root bark sloughs off and rot.
<i>Ganoderma</i> sp.	Wood disintegration of collar and root.
<i>Graphium</i> sp.	Gummosis.
<i>Leptothyrium pomi</i> (Mont. and Fr.) Sacc.	Fly speck on fruit.
<i>Macrosporium</i> sp.	Leaf spot, associated with dessiccated twigs.
<i>Penicillium digitatum</i> Sacc.	Green mould of fruit.
<i>P. italicum</i> Wehmer.	Blue mould.
<i>Phoma</i> sp.	Stem spot, blight.
<i>Phomopsis</i> sp.	Blight.
<i>Phytophthora parasitica</i> Dastur.	Brown rot.
<i>Phytophthora</i> sp.	Brown rot.
<i>Pleospora</i> sp.	Twig rot, twig blight, leaf spot.
<i>Polyporus</i> sp.	Collar rot.
? Psorosis.	
<i>Rhizoctonia bataticola</i> (Taub.) Butl.	Collar and root rot.
<i>R. solani</i> Kühn.	Root rot.
<i>Sclerotinia sclerotiorum</i> (Lib.) Mass.	Twig dry rot.
Sooty mould, undet.	Leaves and fruits.
Dry root rot, undet.	Collar.
Gummosis, undet.	Stem and collar rot.
Bench rooting, non-parasitic.	
Brown leaf spot, undet.	
Pox or breakdown (Nuksan), non-parasitic.	Fruit.
Chlorosis, non-parasitic.	
Endoxerosis, non-parasitic.	Internal decline of fruit.
Etiollement.	
Frost injury.	
Fumigation injury.	
Graft wilting, non-parasitic.	
Gumming, non-parasitic.	Branches, twigs, petioles.
Gum spot, undet.	Leaves.
Hail injury.	
Hot wind (Khamsin) injury.	
June drop.	
Leaf roll, non-parasitic.	
Leaf scorch, non-parasitic.	
Leaf yellowing, undet.	

Little leaf, undet.	
Mottle leaf, non-parasitic.	
Oleocellosis, non-parasitic.	
? Ring blotch, undet.	
Stem spot, non-parasitic.	Especially on sweet lemon.
Stigminosis, non-parasitic.	Leaves.
Teratological malformations.	Fruit.
Wither-tip, undet.	Branches.
Xyloporosis, non-parasitic.	Young trees.
<i>Xanthoria parietina</i> (L.) Th.	On twigs.
<i>Cuscuta</i> sp.	

CITRUS SINENSIS OSBECK. — VALENCIA ORANGE.

Fruit cracking.	
Puffing (Farush).	Fruit.

CITRUS NOBILIS VAR. *DELICIOSA* × *C. PARADISI*. — TANGELO SAMPSON.

<i>Alternaria</i> sp.	Fruit rot, seedling leaf roll and browning.
<i>Macrosporium</i> sp.	Seedling leaf roll and browning.
<i>Rhizoctonia bataticola</i> (Taub.) Butl.	Root rot.
<i>Dothiorella gregaria</i> Sacc. (?)	Blight of branches.
<i>Exanthema</i> , non-parasitic (?)	Twigs.

PONCIRUS TRIFOLIATA RAF.

<i>Fusarium</i> sp.	Damping off.
<i>Rhizoctonia solani</i> Kühn.	Damping off.

Poland: The Beet Weevil *

The beet weevil, *Cleonus* (*Bothynoderes*) *punctiventris* Germ, recently reported in Poland, has already become a menace to the sugar industry and beet-growers in the county of Volhynia.

The appearance of some adult weevils in 1931 seemed only to have a scientific interest, but these insects have since increased to such an extent that in 1936, they were to be found in 16 localities. In the neighbourhood of Szpanów, the average number of adult insects per ha. amounted to 3000. In 1937, *B. punctiventris* was reported in 56 localities of 6 districts in Volhynia.

* Communication from the official correspondent of the Institute, Professor STANISŁAW MIKIEWICZ, Chief of the Department of Entomology, State Institute for Agricultural Research, Puławy, Poland.

* Mon. 4 Ingl.

As a control measure, protective ditches are dug around the beet fields, and the adult weevils are collected. Insecticides have not yet been tried.

Biological studies on the behaviour of the insect in Poland have been undertaken at the Volhynia Plant Protection Station at Luck.

Southern Rhodesia: Locust Invasion, 1932-38 *

Monthly Report No. 73. December, 1938.

Flying swarms of the red locust (*Nomadacris septemfasciata*, Serv.), some described as large and all either fully matured or approaching maturity, were reported during the month from seventeen districts in the Colony as follows:—

Mashonaland: Charter, Chibi, Darwin, Hartley, Lomagundi, Makoni, Mazoe, Mtoko, Melssetter, Nganga, Umtali and Victoria.

Matabeleland: Belingwe, Bulawayo, Bulalima-Mangwe, Gwanda and Insiza.

Egg-laying, which commenced at the end of November, was reported from six districts in Mashonaland, namely: Chibi, Darwin, Hartley, Melssetter, Mtoko, and Umtali, and one district in Matabeleland, namely, Belingwe. Egg-laying in the northern portion of the Darwin District has occurred on a large scale.

The first hopper swarms were reported from the Umtali District on the 19th instant, and from the Mtoko District on the 30th.

It would appear that the swarms invading the eastern districts from Portuguese East Africa were more advanced than the swarms originating in Southern Rhodesia.

Locust birds have been seen following many of the flying swarms.

Little damage has been reported generally, although 100 acres of maize was destroyed on one farm.

LEGISLATIVE AND ADMINISTRATIVE MEASURES

Algeria. — An Order of November 8, 1938 modifies the Order of September 12, 1932 regarding the organization of the Service for plant protection and phytopathological control. (*Journal Officiel de l'Algérie*, Alger, 25 novembre 1938, XII^e année, n° 47, p. 2090).

Germany. — By Ministerial Order of November 7, 1938 amending the Decrees of March 28 and September 30, 1932 [see this *Bulletin*, 1929, No. 6, p. 83, and 1932, No. 12, p. 205] the purpose of which was to prevent the introduction of the carnation leaf-roller [*Tortrix promubana*], the importation of

* Communication from Mr. J. K. CHORLEY, Acting Chief Entomologist, Agricultural Laboratory, Department of Agriculture, Salisbury, Southern Rhodesia.

carnations (cut flowers) is allowed as from November 15, 1938 instead of from November 30. (*Nachrichtenblatt für den Deutschen Pflanzenschutzdienst*, Berlin, Anfang Dezember 1938, 18. Jahrg., Nr. 12, S. 109-110).

Australia (Western Australia). — On December 6, 1938 notice is given that Indian hemp (*Cannabis sativa*) has been declared a noxious weed throughout the State and that *Watsonia angusta*, *W. meriana* and *Antholyza aethiopica* have been declared noxious weeds within the boundaries of the Gingin Road Board District. (*Government Gazette of Western Australia*, Perth, December 3, 1938, No. 58, p. 2118).

* * * On December 22, 1938 it has been published that Arum lily (*Zantedeschia* [*Richardia*] *aethiopica*) has been declared a noxious weed within the boundaries of the Capel Road Board District. (*Ibid.*, December 23, 1938, No. 61, p. 2191).

Cyprus. — By Order No. 197 of October 13, 1938, which may be cited as the Plant Diseases (*Icerya purchasi*) Order, 1938, within any area declared to be infested by this scale insect the following provisions shall have effect:—

(a) All or any trees or plants whatsoever within any such area as the Director of Agriculture may require shall be fumigated, sprayed, destroyed or otherwise treated as the Director of Agriculture shall require.

(b) No trees or plants or any part thereof shall be removed from any such area without the written permission of the Director of Agriculture previously obtained and such permission shall be subject to such conditions as he may require.

(c) Any person instructed by the Director of Agriculture may enter any land, garden, yard or any other place within any such area and may carry out such inspection and examination of any trees, plants any parts thereof and carry out such treatment of the same as may be required by the Director of Agriculture as in paragraph (a) hereof provided. (*Supplement No. 3 to the Cyprus Gazette No. 2679 of 14th October, 1938. Subsidiary Legislation*, Nicosia, 1938, pp. 480-481).

* * * By Declaration No. 198 of same date the area described in the joint Schedule is declared to be a place infested with *I. purchasi*. (*Ibid.*, p. 481).

Colombia. — Law No. 203 of November 30, 1938 relative to plant protection, the import, export and transport of plants and other plant products, trade control and the use of insecticides, fungicides and the necessary apparatus, establishes the penalties for infractions of Government measures and also the quotas to be paid by the Government and growers towards the expenses incurred in the control of plant diseases and pests. (*Diario Oficial*, Bogotá, 1º de diciembre de 1938, año LXXIV, núm. 23938, pág. 595).

Dominican Republic. — In order to prevent the introduction of *Cercospora musae*, causal agent of Sigatoka disease now recorded in Central America, Queensland, Java, Malaya and Fiji, and also the disease, not yet determined, attacking the banana in Haiti, Decree No. 74 of November 7, 1938 prohibits import into the Dominican Republic of living or dead plant matter and *Musa* spp. from the above-mentioned countries. (*Revista de Agricultura*, San Cristóbal, Prov. Trujillo, República Dominicana, noviembre de 1938, vol. XXIX, núm. 110, pág. 556).

Egypt. — By Order of December 20, 1938, *Pulvinaria psidii* is declared a pest harmful to fruit trees.

The Governorship of Cairo, its surroundings and the town of Guizeh, have been declared infested by this scale insect.

It is prohibited to transport, by any means whatever, *Ficus* or guava plants and any parts or fruits of these from the infested zone to any other locality. (*Journal Officiel du Gouvernement Egyptien*, Le Caire, 26 décembre 1938, 65^{ème} année, n° 141, p. 3).

* * By another Order of the same date, *Aulacaspis rosae* has also been declared a pest of fruit trees.

The Governorships of Alexandria and of Port Said have been declared infested by this scale insect.

It is prohibited to transport, by any means whatever, from the infested zone to any other locality, plants of the Rosaceae family, liable to attack by *A. rosae* (apple, pear, quince, plum, apricot, cherry, almond and peach trees, strawberry plants, rose bushes, etc.). The sale or offer for sale of plants, parts of plants or fruits, infested by this insect, is also prohibited. (*Ibid.*, p. 4).

United States of America. — Amendment No. 5 to revised rules and regulations supplemental to Notice of Quarantine No. 52 on account of the pink bollworm of cotton [*Pectinophora (Platyedra) gossypiella*] adds to the lightly infested area that part of Pinal County in Arizona not heretofore within the regulated area, all of Maricopa County in Arizona, and the Texas counties of Brooks, Jim Wells, Kenedy, Kleberg, and Nueces. This action is taken with respect to all counties, except Kenedy, owing to the recent finding of light infestations of the pink bollworm. Kenedy County is included in the regulated area because there are no facilities in that county for ginning the small acreage of cotton grown therein which is normally ginned in the regulated area.

This amendment of regulation 3 was approved on November 15, 1938 and became effective on November 17, 1938. (*B. E. P. Q.* - Q. 52, [Washington, D. C.], 1938, 2 pp.).

Guadeloupe. — A Decree of the President of the French Republic dated November 9, 1938, enacts that, with a view to preventing the spread in Guadeloupe of banana diseases and pests, it is prohibited:—

(1) To utilize banana waste as packing material for transport of commodities within the Colony;

(2) To remove, transport or sell banana plants or parts of plants coming from infested plantations or regions.

Banana plantations are placed under the supervision of the Agricultural Service. For this purpose, every planter is required to declare his plantation in the place where he is resident.

Where a plantation is attacked by parasites or infected by a disease of some gravity, a special declaration must be made to the Agricultural Service which will make the necessary investigations and indicate the measures to be taken.

Owners of plantations infected by a cryptogamic disease or attacked by insects are required to apply the treatments prescribed by the Agricultural Service. The officers of this Service will supervise these applications.

On plantations seriously attacked, the destruction of the plants on the spot, by burning, shall be effected by the owners, or at their expense, on the request of the Agricultural Service.

For the laying out of new plantations, application must be made to the Government of the Colony. Permission will be given only on the reasoned recommendation of the Agricultural Service. (*Journal officiel de la République française*, Paris, 18 novembre 1938, LXX^e année, n° 270, p. 13078).

Italy. — The Royal Decree-Law No. 2205 of July 27, 1938 relative to the organisation and operation of the Royal Agronomic Institute for Italian Africa (formerly the Italian Colonial Agricultural Institute, Florence) specifies that this Institute is the scientific and technical department of the Ministry of Italian Africa for agricultural research and experimentation.

The said Institute is required, *inter alia*, to study the plant and animal pests of crops; for this purpose the Institute has at its disposal a laboratory for agricultural entomology and another for plant pathology. (*Gazzetta Ufficiale del Regno d'Italia*, Roma, 28 febbraio 1939, anno 80^o, n. 49, pp. 1067-1071).

* * By Ministerial Decree of November 23, 1938, the application of the exchange duty, at the reduced rate of 0.75 lire per cent., is extended, as from December, 15, 1938, to the parasiticide commercially sold as 'Polvere anticrittogamica al 16 per cento di rame'. (*Ibid.*, 26 dicembre 1938, anno 79^o, n. 294, p. 5277).

* * By Ministerial Decree of December 5, 1938 this exchange duty is applied, as from January 1, 1939, to the product commercially sold as 'Solfocuprica'. (*Ibid.*, p. 5278).

* * By Ministerial Decree of December 19, 1938, a competition has been opened, based on tests and qualifications, for a bursary for advanced study in phytopathology with particular reference to citrus cultivation, at the Royal Observatory for Plant Diseases attached to the Royal Station for Fruit and Citrus Crops, Acireale. (*Ibid.*, 19 gennaio 1939, n. 15, pp. 290-291).

* * The Ministerial Decree of December 26, 1938 which fixes the special rules for the export of lettuces (cabbage and roman) and of endives (including curled variety) requires, *inter alia*, that these salads shall be free from attacks of parasites and frost damage. (*Ibid.*, 2 gennaio 1939, n. 1, pp. 4-7).

Kenya. — By Government Notice No. 851 of November 21, 1938, the importation into the Colony and Protectorate of Kenya of any rooting medium for plants which consists either wholly or in part of soil, whether or not it is attached to any plant, is prohibited.

No consignment of fruit grown in countries other than Zanzibar, Tanganyika Territory and Uganda, shall be permitted to enter the Colony unless accompanied by a certificate signed by an officer of the exporting country duly authorized by the Government of that country, to the effect that a percentage (to be stated) of the packages in the consignment has been examined by him and has been found to be free from insect pests.

The Schedule to Government Notice No. 688 of September 2, 1937 [see this *Bulletin*, 1938, No. 4, pp. 82-83] is amended by adding at the end thereof the following:— Barberry [*Berberis vulgaris*] and buckthorn [*Rhamnus cathartica*]. (*Colony and Protectorate of Kenya. Official Gazette Supplement. Proclamations, Rules and Regulations, No. 42. Supplement No. 46, Nairobi, November 29, 1938, Vol. XL, No. 57, p. 373*).

Morocco (French Zone of). — Decree of November 15, 1938 authorizes the destruction of boars which have been causing severe damage to the crops in the territory of the Ouezzane Circle. (*Bulletin Officiel*, Rabat, 25 novembre 1938, XXVII^e année, n° 1361, p. 1605).

* * By Vizirial Decree of December 24, 1938 (2 kaada 1357), the Vizirial Decree of March 17, 1936 (23 hija 1354) listing the plant parasites for which syndical control associations may be established [see this *Bulletin*, 1936, No. 8, p. 179] has been supplemented as follows:—

.....
Mediterranean fruit fly (*Ceratitidis capitata*, Wied.). (*Ibid.*, 27 janvier 1939, XXVII^e année, n° 1370, p. 104).

* * An Order of December 30, 1938 authorizes the destruction of rabbits causing serious damage in the Rabat area and in Port-Lyautey territory. (*Ibid.*, 13 janvier 1939, n° 1368, p. 37).

* * An Order of December 31, 1938 authorizes the establishment of a syndical association for the control of plant parasites called the 'Association syndicale de lutte contre les parasites des plantes de Sidi-Slimane'. (*Ibid.*).

New Zealand. — By Resolution passed by the Kaitieke County Council on November 14, 1938, and published by the Minister of Agriculture on November

24, 1938, the said Country Council has assumed responsibility for the administration of the Noxious Weeds Act, 1928 as from November 14, 1938. (*The New Zealand Gazette*, Wellington, December, 1, 1938, Numb. 85, p. 2479).

Rumania. — Order No. 300.216 of November 17, 1938 authorizes the transport through Rumania of all species of trees, shrubs, plants, cuttings, vines and other root plants, and also potatoes, beans, peas, lentils and fodder seed, provided that consignments are accompanied by a certificate testifying to condition and origin, granted by a State establishment recognized by the Rumanian Government. (*Monitorul Oficial*, Bucuresți, la 23 Noemvrie 1938, anul XVI, Nr. 273, pag. 5601).

Tunis. — By Decree of November 17, 1938, owners or occupiers of establishments such as nurseries, gardens or other horticultural land engaged regularly in the propagation of, or trade in plants, are required to destroy any parasitic foci appearing on their parent plants, beds, stocks, young plants whether grafted or not, windbreaks, etc.

On such establishments, whatever the condition of the plants, the following treatments are compulsory:—

(1) For all deciduous fruit trees:—

(a) Winter spraying, by means of a sprayer with a minimum pressure of 8 kg. to the square centimetre, with one of the following materials: organic colouring substances, anthracenic oils, white oils, polysulphides.

This treatment must be effected by February 15 at latest.

(b) Spraying carried out at the time of budding with copper mixture, containing 0.50 per cent. of copper metal.

(2) In addition to the above treatment, almond, apricot, peach, plum and cherry trees must be given the following treatments:—

Spraying effected in autumn, when the leaves fall, with a copper mixture containing 0.75 per cent. of copper metal.

This treatment must be effected by December 20 at latest.

Parasiticides other than those enumerated may be used if a permit is obtained from the Director of Economic Affairs.

Plants ascertained in the course of the sanitary inspection to be infested shall be at once destroyed. In default, the destruction will be effected by the administrative authority, without prejudice to the infliction of the penalties provided. (*Journal Officiel Tunisien*, Tunis, 6 décembre 1938, 56^e année, n^o 97, p. 1575).

South Africa (Union of). — By Proclamation No. 265 of December 1, 1938, the removal of any plant or portion of a plant belonging to any species of *Opuntia* (prickly pear) from the districts where certain insects, namely *Cactoblastis cactorum*, are being used for the biological control of the aforesaid prickly pears, is prohibited except under authority of the Minister of Agriculture and Forestry. (*The Union of South Africa Government Gazette*, Pretoria, 9 December 1938, Vol. CXIV, No. 2590, p. 830).

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INTERNATIONAL BULLETIN

OF PLANT PROTECTION

DISCOVERIES AND CURRENT EVENTS *

Eritrea and Amhara: Locust Movements †

During January, 1939 an expert of the Agricultural Bureau of Eritrea made a caravan tour of the low-lying eastern plain from Ras Casar to Zula without noting any desert locusts (*Schistocerca gregaria*) or African migratory locusts (*Locusta migratoria migratorioides*). Observers were stationed at Mersa Taclai, Scheeb and at Zula.

Egg-pods and hoppers of *L. migratoria migratorioides*, however, were reported in the territories of the Commissariats of western Tigrai, in the western low-lying plain and in the Commissariat of Macallè, towards the end of the month.

Swarms were less numerous than in the previous months, though towards the end of January they increased somewhat disquietingly in certain areas. In the western low-lying plain of western Tigrai, fairly large swarms, which however, never followed any definite direction, were frequently reported.

In comparison with December, 1938, the situation in Amhara had improved considerably.

Small swarms of *L. migratoria migratorioides* were still noted in the Commissariat of Gondar, in the basin of Lake Tana and in Curamba plain. No egg-pods were found.

The ordinary control measures were continued: threshing, ditches and poison bait.

A method which has given good results in the newly annexed territories is collection of the adults in the morning, when they are still inactive from the cold of the previous night.

In some areas where the land allowed of it, ploughing was carried out to unearth the eggs.

Estonia: Plant Diseases New to the Country §

Uropyxis sanguinea Magn. Reported for the first time on November 10, 1934 in Raadi Park, near Tartu, on the leaves of *Mahonia aquifolium*. This disease had already appeared in Latvia and in Finland some years previously.

Neofabraea corticola (Edgert) C. A. J. First observed in 1935 on a trunk of *Pyrus malus*. Now fairly widely spread.

* Under this and the next heading the countries are arranged in French alphabetical order.

† Communication from Dr. LUIGI M. BOLOGNA, Chief of the Agricultural Bureau of Eritrea, Asmara, transmitted to the Institute by the Government of the Colony.

§ Communication from Professor E. LEPIK, Director of the University Phytopathological Station, Tartu, Estonia.

Oidium euonymi-japonici (Arc.) Sacc. Introduced with plants of *Euonymus japonicus* from Central Europe, was first noted in 1935 at Paide; is now found in certain greenhouses.

Uncinula necator (Schw.) Burr. Introduced from Germany with plants of *Vitis vinifera*, it was first reported in 1936. The disease was only noted in one locality, and was stamped out by means of careful disinfection.

Botrytis paeoniae Oudem. Introduced from western Europe with some peony plants, was first reported in 1932. The disease is now to be found in certain regions.

Botrytis tulipae (Lib.) Lindb. Introduced from western Europe with tulip bulbs, it was first reported in 1937. At present the disease is of infrequent occurrence.

Fusarium conglomerans Wr. var. *callistephi* Beach. Was only reported in the summer of 1933, but probably had already been in the country for some time.

Pestalotia lupini Sor. Noted for the first time in 1935 in crops of *Lupinus perennis*.

Phyllosticta sojaecola Mass. Reported in 1935 on the leaves of *Glycine soja*.

Italy: The 'Fetola' or Yellow Spot of Citrus in Sicily*

During the last decade of December, 1938 when I was at Adrano in the province of Catania, several growers asked me about a serious disease of the orange, called here as in other parts of Sicily, 'fetola'.

This disease has only been observed in recent years in Adrano and in the other citrus areas of the Simeto Valley (localities of Aragona, Canalotto, Ruggeri, Carcaci, Cugno di Carcaci, Miraglia, Cavallera, Mandarano, Schittino, Marotta, Don Carlo, Ciappa, etc.), but it has developed to an alarming extent in the last two years. It is estimated that in some of the above-mentioned localities (e. g., Aragona) a fifth or even as much as a quarter of the present season's orange production is spoilt through 'fetola' or yellow spot. In view of the present prices obtained for oranges, this is a heavy loss.

The value of the fruits is appreciably reduced, as they cannot be classed as first grade oranges.

The skins of oranges attacked by 'fetola' show spots round in shape if isolated and more or less irregular if joined, slightly concave. The number of these spots varies: from only a few to 40 or even more per fruit. Each spot may spread over a surface of a few millimetres to several centimetres (fig. 1). The spots on the epicarp have a dotted aspect; this is due to the oil-bearing glands which are not attacked. When the air penetrates into the interglandular tissue, the oil therein dries up, the tissue turns a sulphur yellow colour and the spots have a reticulated appearance (fig. 2).

This disease generally appears in September and becomes more decided during the following months.

The disease differs from that known as 'petecchia' as the oranges attacked by the latter show brownish and more concave spots.

* Communication from Professor GIUSEPPE RUSSO, Laboratory of Agricultural Entomology of the University of Naples, Portici, Italy.

A disease similar to 'fetola' has been known for several years in California where it is called fruit spotting. It was recently shown that this is due to

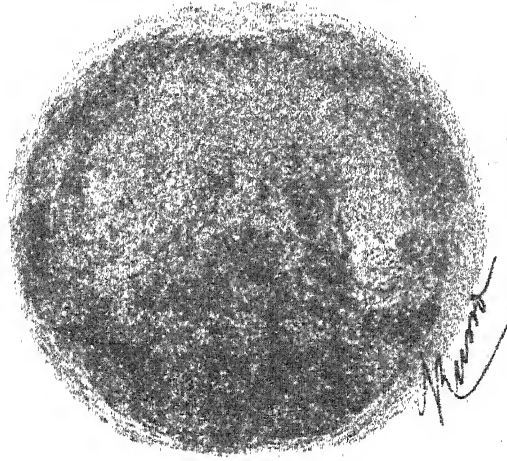


FIG. 1.

the attack of a small jassid, *Empoasca fabae*. It is probable that the 'fetola' in Sicily is also due to insects belonging to the same family (genus *Empoasca*

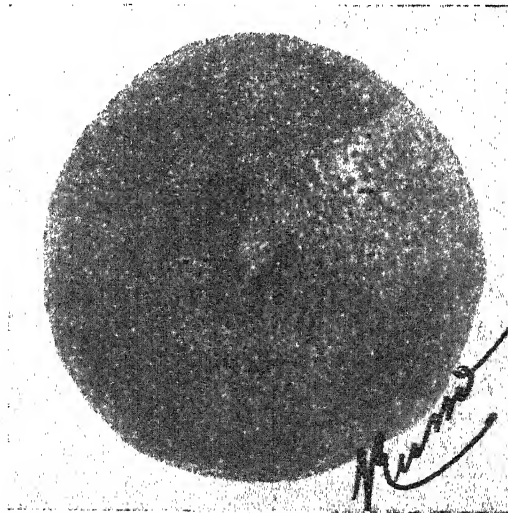


FIG. 2.

or one similar). This would confirm the opinion of some citrus-growers that the 'fetola' is more extensive in the zones where cotton is cultivated. Cotton is a host plant of Jassids, which can easily change to citrus.

The subject is an important one, and a careful biological study of both the 'fetola' and cotton insects, with a view to obtaining an effective method of control, would be useful.

In California, to control the insects causing fruit spotting, spraying with the following mixture is now recommended:—

Calcium hydrate	6 kg.	(150 lb.)
Zinc sulphate	950 grams	(24 lb.)
Blood albumin	42 cc.	(1 pint)
Water	100 litres	(300 gallons)

This mixture exerts a repellent action. In West Indies and in Italian Somaliland, I obtained good results in controlling certain species of *Empoasca* by spraying the attacked plants with a 1 per cent. Bordeaux mixture, which also has a repellent action.

In Italy, a preparation similar to the American mixture could be tried, as also lime-sulphur wash (4-5 per cent.) mixed with sodium or lime caseinate (50 grams in 100 litres); the latter substance increases the adhesiveness of the liquid. Dusting the plants with sulphur mixed with pyrethrum or tobacco powder should also be tried. Treatment with powder or liquid preparations should begin several weeks before the first attack of the insects on the fruits.

Poland: Organization of the Plant Protection Service *

Plant protection in Poland is based on the activities of the 13 plant protection Stations attached to the Chambers of Agriculture. In these Stations is concentrated all the practical work done in this sphere in the various counties, in accordance with measures taken by the Government, administrative authorities and various social organizations. These Stations work in close collaboration with agricultural and horticultural experiment Stations, seed-testing Stations and schools of agriculture. Plant protection Stations are authorized to issue sanitary certificates for exports, signed by the directors of the Stations in their capacity of plant protection inspectors.

The Stations are in general maintained and controlled by the Ministry of Agriculture and Agrarian Reform, the Plant Protection Section of the Government Institute for Agricultural Research at Pulawy being the central service. Among the most important duties of this Section are the planning of control methods, the preparation of general reports on the work of the Plant Protection Service, the direction of propaganda and the control of the means of carrying on the campaign.

* Communication from Dr. J. RUSZKOWSKI, Director of the Plant Protection Section, Government Institute for Agricultural Research, Pulawy, Poland.

An annual meeting is held at the Ministry of Agriculture attended by representatives of the institutions engaged in plant protection or interested in the progress accomplished, and reports on this subject are presented. Moreover, the Pulawy Plant Protection Section invites the entire staff of the Service to its two annual meetings, one of which is held during the winter, in the capital, and the other during the summer, at one of the plant protection Stations, all Stations being visited in turn.

Two sections of the Central Institute are specially devoted to scientific work, namely, those for plant diseases and pests.

The Institute publishes two periodicals, one of which deals with the scientific work mentioned above and the other with practical matters. The latter is also the organ of the Plant Protection Service.

Southern Rhodesia: Locust Invasion, 1932-39 *

Monthly Report No. 74. January, 1939.

Winged swarms of the red locust (*Nomadacris septemfasciata*, Serv.) have been reported from the following districts during the month of January 1939, namely:—Lomagundi, Darwin, Mazoe, Mtoko, Umtali, Bikita, Victoria, Ndanga, Gwanda, and Belingwe.

All the swarms were in breeding condition and practically all were engaged in egg-laying.

Hoppers have appeared in the districts of Lomagundi, Darwin, Mrewa, Inyanga, Melsetter (Chipinga), Bikita, Charter, Ndanga, Chibi, and Belingwe.

The hoppers are being destroyed in all accessible localities.

The position generally appears to be very similar to that obtaining during January, 1938, although rather fewer reports of locusts have been received. Hatchings appear to have commenced nearly two weeks earlier during the present season compared with last year.

Italian Somaliland: Locusts †

No locusts were reported in the Colony during January, February and March, 1939.

* Communication from the official correspondent of the Institute, Mr. RUPERT W. JACK, F. E. S., Chief Entomologist, Agricultural Laboratory, Department of Agriculture, Salisbury, Southern Rhodesia.

† Communication from Dr. LUIGI BOZZI, Chief of the Agricultural Services of Italian Somaliland, Mogadiscio, transmitted to the Institute by the Government of the Colony.

* Mon. 5 *Ingl.*

LEGISLATIVE AND ADMINISTRATIVE MEASURES

Germany. — A Law of October 1, 1938 relative to carrier-pigeons prohibits the shooting of these birds. Landowners are no longer allowed to capture pigeons found on their property during the sowing period. (*Nachrichtenblatt für den Deutschen Pflanzenschutzdienst*, Berlin, Anfang März 1939, 19. Jahrg., Nr. 3, S. 22).

*** A Decree of October 15, 1938 relative to the damage caused by wild rabbits prescribes that every effort should be made to eliminate these animals in fenced-in areas.

As many landowners have complained that the game law and police measures in force prohibit them from shooting the rabbits, it is suggested that the competent authorities should select trustworthy persons specially for the purpose of shooting the rabbits; a limited district will be assigned to each. Proprietors sustaining losses through rabbits may apply to these official huntsmen, who will be compensated for their expenses keeping the game. (*Amliche Pflanzenschutzbestimmungen*, Berlin, 1. Februar 1939, Bd. XI, Nr. 1, S. 18-19).

*** By Circular of January 9, 1939, the Minister of Agriculture instructs that the number of potato varieties non-resistant to wart disease [*Synchytrium endobioticum*] still allowed for planting must be reduced to a minimum until finally eliminated in 1941. (*Ibid.*, S. 1-2).

*** An Ordinance of January 10, 1939 issued by the General Potato Union modifies the regulations relative to the trade in potatoes established by Ordinance No. 8 of June 20, 1935 [see this *Bulletin*, 1935, No. 9, pp. 203-204]. (*Ibid.*, S. 6-13).

*** An Ordinance of January 10, 1939 by the deputy of the Minister of Agriculture dealing with questions referring to seeds, revises the regulations relative to trade in seed potatoes. The regulations fixed by this Ordinance supplement those already laid down in respect to trade in potatoes (see below). The provisions are mostly of a phytosanitary nature.

A distinction is made between (a) choice potatoes ('Hochzucht'); (b) certified seed potatoes ('Anerkannter Nachbau') and (c) ordinary commercial potatoes ('Handelsaat').

There are detailed provisions regarding quality. Account is taken of certain factors affecting quality: earth contained in consignments, slight defects, infraction of the regulations, serious injuries, diseases, damage caused by rot, moisture and frost, proportion of tubers not conforming to standard, wart disease. A table indicates the degrees of deterioration which the purchaser must accept and

the percentage of tubers below standard which give the right to a reduction in price or return of the consignment.

The diameter of round potatoes should not be lower than 3.4 cm. nor greater than 7 cm.; for oblong varieties, the diameter ranges from a minimum of 4 cm. to a maximum of 8 cm.

Among slight defects are included: rust marks, inner woody layers, green tubers, slight wart disease, cracked skin, etc.

Injuries produced by animals or any other cause which may reduce germinative power are considered as serious defects.

Potato plants for export should be inspected for both phytosanitary condition and quality, taking into account the regulations in force in the importing country. (*Ibid.*, S. 14-17).

Germany (Thuringia). — By Decree of January 24, 1939 modifying the Decree of March 18, 1935 relative to protecting newly sown fields against pigeons [see this *Bulletin*, 1935, No. 6, p. 133] proprietors of pigeons are required to prevent their birds from going into newly sown fields and gardens during the spring sowing period. This protection period is limited to four weeks in spring and four weeks in autumn. The period may be extended, however, to six weeks or even longer, if authorized by the Minister of Agriculture.

Landowners are allowed to capture any pigeons found on their property during the above-mentioned period. (*Ämtliche Pflanzenschutzbestimmungen*, Berlin, 1. Februar 1939, Bd. XI, Nr. 1, S. 20).

* * An Ordinance of February 10, 1939 establishes that from this date the police authorities may no longer issue permits for shooting sparrows.

It is suggested that sparrows be controlled by destroying their nests and using the Schwing trap. (*Nachrichtenblatt für den Deutschen Pflanzenschutzdienst*, Berlin, Anfang März 1939, 19. Jahrg., Nr. 3 S. 22).

Chile. — The bean weevil (*Bruchus obsoletus*) having been found in the commune of Limache, Department of Valparaiso, Decree No. 811 of December 31, 1938 declares infested the whole of the zone where this pest was noted and makes control measures compulsory. (*Diario Oficial de la República de Chile*, Santiago, 20 de enero de 1939, año XLII, núm. 18.271, pag. 191).

United States of America. — The Notice of Quarantine No. 72 and the regulations supplemental hereto, approved on December 14, 1938 and effective on January 15, 1939, contains measures for preventing the spread of dangerous infestations of the white-fringed beetle (*Naupactus leucoloma*) and a closely related species of *Naupactus* in the States of Alabama, Florida, Louisiana, and Mississippi. (*B. E. P. Q.* — Q. 72, [Washington, D. C.], 1939, 5 pp.).

France. — A Ministerial Decree of February 15, 1939 appointing the members of the Advisory Committee for plant protection lays down that the Committee shall give its opinion on questions dealing with plant protection submitted to it by the Minister of Agriculture. It may submit to the Minister any proposals regarding its activities. The Committee is empowered to co-ordinate the research and experimental work carried out on the control of crop pests and shall determine the methods and products for general use. It shall advise assistance to be granted to agricultural organizations engaged in the control of crop pests as well as on the legal and regulation questions regarding crop protection.

By the same Ministerial Decree a Permanent Commission, presided over by the Director of Agriculture or his deputy, is constituted within the Committee. (*Bulletin de l'Office de Renseignements agricoles*, Paris, 1^{er} mars 1939, année 1939, n° 5, p. III-II2).

Italy. — Royal Decree No. 2221 of July 29, 1938 lays down that the technical agricultural organizations for Libya and Italian East Africa are the Royal Agromomic Institute for Italian Africa [see this *Bulletin*, 1939, No. 4, p. 85], the agricultural Offices and the agricultural experiment Centres.

The control of the diseases and pests of crops is the province of the agricultural Offices which have the requisite means at their disposal.

The agricultural experiment Centres carry out scientific studies and research work dealing with the control of the diseases and pests of plants and agricultural products. (*Gazzetta Ufficiale del Regno d'Italia*, Roma, 15 marzo 1939, anno 80°, n. 63, pp. 1334-1337).

* * By Law No. 155 of January 5, 1939 the Royal Decree-Law No. 1781 of November 24, 1938 relative to the capture of sparrows with a view to protecting grain crops [see this *Bulletin*, 1939, No. 3, p. 56] is converted into Law. (*Ibid.*, 15 febbraio 1939, n. 38, p. 821).

* * Law No. 156 of January 5, 1939 converts into Law the Royal Decree-Law No. 1622 of September 5, 1938 relative to the protection of fruit trees [see this *Bulletin*, 1939, No. 2, pp. 32-34]. (*Ibid.*).

* * By Ministerial Decree of February 16, 1939, the control of the European corn borer (*Pyrausta nubilalis*) is compulsory in the provinces of Pesaro and Ancona, the method indicated in the Ministerial Decree of June 24, 1937 [see this *Bulletin*, 1937, No. 9, pp. 205-206] to be employed. (*Bollettino Ufficiale del Ministero dell'Agricoltura e delle Foreste*, Roma, 1^o marzo 1939, anno XI, n. 5, pp. 505-506).

Morocco (French Zone of). — An Order of January 4, 1939 specifying the requirements regarding the export of onions from Morocco lays down, *inter alia*, that the onions exported must be free from parasites or disease. (*Bulletin Officiel*, Rabat, 20 janvier 1939, XXVIII^e année, n^o 1369, p. 70-71).

* * A second Order of the same date relative to melon exports prescribes that these fruits must be free from insects and disease. (*Ibid.*, p. 71-72).

New Zealand. — By Order of January 18, 1939, which may be cited as the Orchard and Garden Diseases Act Extension Order, 1939, the disease known as yellow dwarf disease (*Allium virus 1*) is declared to be a disease within the meaning of the Orchard and Garden Diseases Act, 1928. (*Serial Number 1939/2*, Wellington, 1939, 1 p.).

The Netherlands. — A Decree of February 21, 1939 specifies measures for the application of the Law of 1937 relative to the control of the diseases of flowering bulbs. (*Staatsblad van het Koninkrijk der Nederlanden*, 's-Gravenhage, den 28 Februari 1939, N^o 653, blz. [1]-3).

Southern Rhodesia. — By Government Notice No 611 of December 16, 1938 concerning the regulations for the importation of plants, if 5 per cent. or more of any consignment of fruit is found to be infested with the apple codlin moth (*Cydia pomonella*) it shall be rejected, and reconsigned to the country of origin at the expense of the consignor or consignee or destroyed. If less than 5 per cent. is found to be so infested, the inspector may cause the whole consignment to be sorted and re-packed to his satisfaction. If the consignee or addressee or his agent is unable or unwilling to supply the necessary labour for this purpose, a fee of 3*d.* per tray or 1*s.* per bushel shall be charged for labour supplied. (*Colony of Southern Rhodesia Government Gazette*, Salisbury, December 16, 1938, Vol. XVI, No. 50, p. 951).

Yugoslavia. — Order No. 1129/II of January 11, 1939 gives a list of the countries to be considered in 1939 as being contaminated by wart disease of the potato (*Synchytrium endobioticum*), the Colorado beetle (*Leptinotarsa decemlineata*), the potato moth (*Phthorimaea operculella*), and the San José scale (*Aspidiotus perniciosus*). (*Službene Novine*, Beograd, 25. januara 1939, godina XXI, broj 18-IV, str. 37-38).

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Dott. VALENTINO DORE, *gerente responsabile*.

INTERNATIONAL BULLETIN OF PLANT PROTECTION

DISCOVERIES AND CURRENT EVENTS *

Argentine Republic: Locust Invasion in 1938-39 †

The invasion of the South American locust (*Schistocerca paranensis*, Burm.) was less serious than in the preceding season, owing to the vigorous measures taken by the Crop Protection Service, in collaboration with various local institutions, and to the help of farmers, who took an active part in the destruction of this pest.

The first swarms were reported in the province of La Rioja at the beginning of June, 1938, and the movement spread insofar as it was favoured by the climate. They invaded the provinces of Salta, Santiago del Estero, Catamarca, Córdoba, San Luis, Santa Fé, and the Chaco Territory. Small swarms crossed the Río Paraná and invaded the provinces of Corrientes and Entre Ríos, where they laid their eggs, while in the north the Formosa Territory was invaded by a swarm from the south-west, which afterwards penetrated into Paraguay.

As in preceding years, the Crop Protection Service employed all the means at its disposal (flame-throwers, barriers, rollers, rakes, etc.). During the season successful experiments were made with dusts.

The following figures give an idea of the destruction of locusts in the various stages:—

Winged locusts	2,549,365 kg.
Egg-pods	390 »
' Mosquita '	19,823,826 »
' Saltona '	20,153,421 »
Total . . .	<u>42,527,002 kg.</u>

The largest quantity (34,297,526 kg.) was destroyed in the province of Santa Fé, where the invasion was most severe; next in order came the Chaco Territory, where 3,091,086 kg. of locusts were destroyed.

* Under this and the next heading the countries are arranged in French alphabetical order.

† Communication from Mr. ABEL GOYTIA, Agricultural Engineer, Assistant Director of Plant Protection, Ministry of Agriculture, Buenos Aires, Argentine Republic.

Although it can hardly be said that a definite solution of the locust problem is to be found in the use of chemicals, there is no doubt that it was a very important factor in the destruction of the pest; that is to say, it leads to a considerable decrease in the damage caused each year by the adults, which are the most difficult to destroy. The chemicals used for dusting have the advantage of acting by direct contact, and they are harmless both to human beings and to cereal crops, so long as proper precautions are taken.

The destruction of locusts achieved, experimentally, by this method reached 33,673,000 kg., a very satisfactory figure; it will certainly become the surest and most rapid method in the anti-locust campaign and will tend to supersede the existing methods.

The above-mentioned experiments were carried out in only a small zone of the province of Santa Fé, owing to the scanty supply of apparatus; purchase of a large number is contemplated for the coming seasons, the type chosen being both powerful and manageable.

The following table shows the results obtained in the destruction of eggs and young locusts ('mosquita' and 'saltona' stages) effected in December, 1938.

Provinces and Territories	Eggs — Kg. (1)	'Mosquita'		'Saltona'	
		Kg. (2)	Ha. (2)	Kg. (2)	Ha. (2)
Provinces: —					
Santa Fé	46,688	13,487,350	5,136	82,105,976	14,251
Corrientes	—	1,791,182	1,086	6,801,734	4,438
Entre Rios	7,742	6,400	3,650	1,450,200	3,608
Córdoba	35,442	9,025,000	69,748	15,781,795	5,669
Salta	40	19,200	—	35,400	—
San Luis	11,309	777,600	483	4,627,800	—
Santiago del Estero	—	65,150	—	546,600	—
Territories: —					
Formosa	—	—	115	—	523
Chaco	—	191,084	5,723	401,180	14,132
Total . . .	101,221	25,362,986	85,941	111,750,685	42,621

(1) Destruction by collection.

(2) Destruction by spraying and barriers.

(3) Area invaded.

Eritrea and Amhara: Locust Movements *

Schistocerca gregaria. This species was not reported in Eritrea during February, 1939.

* Communication from Dr. LUIGI M. BOLOGNA, Chief of the Agricultural Bureau of Eritrea, Asmara, transmitted to the Institute by the Government of the Colony.

Locusta migratoria migratorioides. During the same month, neither egg-pods nor hatchings were noted in the territory of Eritrea. A few swarms of insignificant size were observed in western Tigrai.

As compared with the previous months, the situation continues to improve. A few swarms flying in the direction of Dancalia were observed in the Uollo region.

Little damage has been caused.

* * *

Schistocerca gregaria. No desert locusts were reported in Eritrea nor in Amhara during March, 1939.

Locusta migratoria migratorioides. During the first decade of March a swarm, coming from Lasta, was observed in Eritrea, chiefly in the Tigrai zone, but it continued its flight towards Dancalia without stopping.

Neither egg-pods nor hatchings were noted in any district.

This being the general position, all the officers in charge of control operations have been recalled, although in some districts which are more subject to invasion, an observation service has been established.

In Amhara, towards March 20, swarms from Lasta were again reported; these have invaded the territories of Lanea and Liarza, and have destroyed the recently sown grain crops.

Greece: *Cerambyx dux*, a Pest of the Almond Tree *

The island of Chios possesses about 500,000 almond trees, a good year's harvest amounting to 1,000,000 okas of almonds. The average production at present, however, is only 400,000 okas.

The value of this production is approximately 15 million drachmae per annum. Two thirds are exported to India and Egypt, the remainder being consumed in Greece.

In recent years, a xylophagous beetle has caused appreciable damage to the trees. The Benaki Phytopathological Institute has identified this insect as *Cerambyx dux*, Fald. The Chios Agricultural Service estimates the annual loss at 100,000 okas of almonds representing a value of 3,500,000 drachmae.

On the recommendation of the Benaki Phytopathological Institute, the Ministry of Agriculture has decided on the application of compulsory control measures in the island.

* Communication from the official correspondent of the Institute, Professor Dr. C. A. ISAAKIDIS, Director of the Benaki Phytopathological Institute, Kiphissia-Athens, Greece.

India: New Diseases Recorded in Burma during the Year 1938 *

(1) *Cystopus candidus* (Pers.) Lév. on *Brassica campestris* at Maymyo and Kyaukse.

(2) *Pestalozzia* sp. on *Aleurites montana*, causing a leaf-spot disease at Hsum-Hsai.

(3) *Phytophthora* sp. on *Achras sapota*, causing a root-rot at Hmawbi.

(4) An eel-worm disease of paddy (*Oryza sativa*) known locally as 'Aket-phet' caused by *Anguillulina* sp.

The first symptom of the disease is the appearance of a flaccid brown or black stain at the point of attachment of the outermost leaf to its leaf-sheath. The discolouration, soon afterwards, extends both upwards and downwards slightly and as a result the leaf turns yellow and drops off. The symptoms then appear on the next full grown leaf which is also killed. The disease in this way, goes on infecting and killing the leaves upwards, till at the time of harvesting, the flag leaf only is left. As a result the yield is affected. The infection first took place when the plants were about a month old.

Southern Rhodesia: Locust Invasion, 1932-1939 †

Monthly Report No. 75. February, 1939.

All reports refer to the red locust (*Nomadacris septemfasciata*, Serv.).

Winged swarms have been reported in the following districts, namely: Lomagundi, Darwin, Mazoe, Mtoko, Umtali, Bikita, Ndanga, Belingwe, and Gwanda.

Practically all these swarms were stated to be egg-laying.

Hoppers have hatched out in the districts of Lomagundi, Darwin, Mrewa, Mtoko, Inyanga, Umtali, Melsetter, Bikita, Charter, Victoria, Ndanga, Chibi, and Belingwe.

One instance of parasitisation of adult locusts with Dipterous maggots was recorded, and in another instance *Stomatorrhina* maggots were observed attacking the eggs.

Hatchings in various localities occurred about the middle of the month, that is about ten days to a fortnight earlier than in 1938. The hatchings are fully as heavy as occurred last year but there is nothing in the nature of a general outbreak.

The hoppers are being destroyed in all accessible localities.

* Communication from the official correspondent of the Institute, Dr. I. N. SETH, B. Sc., Ph. D., D. I. C., Mycologist, Mandalay, Burma, India.

† Communication from the official correspondent of the Institute, Mr. RUPERT W. JACK, F. E. S. Chief Entomologist, Agricultural Laboratory, Department of Agriculture, Salisbury, Southern Rhodesia.

LEGISLATIVE AND ADMINISTRATIVE MEASURES

Germany. — By Decree of January 10, 1939, the Minister of Agriculture has granted facilities for the import and transit of horticultural products from France, Belgium, Luxemburg and Switzerland, countries considered to be contaminated by the Colorado beetle [*Leptinotarsa decemlineata*]. This Decree repeats, with some modifications, and uniting them in one text, the provisions modifying the Decree of July 29, 1937 [see this *Bulletin*, 1937, No. 10, pp. 224-225], passed with a view to preventing the introduction of the Colorado beetle.

A list is given of the ornamental plants which may be imported throughout the year, living, and with roots, with or without adhering earth.

The aerial and fresh parts of the plants given in this list may be imported during the period from April 1 to November 14.

The bulbs of ornamental plants and the tubers of *Gloxinia* and *Begonia* may be imported at any period of the year.

Nursery plants are admitted during the period from November 15 to March 31, on condition that they are free from adhering soil and that the roots have been washed.

Celery stalks may be imported during the period from September 10 to November 14, and endive during the periods from April 1 to 30, and from October 15 to November 14.

Greenhouse cucumbers and melons may be introduced throughout the year, and asparagus, from November 15 to April 30. Consignments should be accompanied by a certificate testifying that the products in question were grown under glass.

Shoots of green asparagus may be imported during the period from November 15 to March 31.

All the above-mentioned consignments should be accompanied by a certificate granted by an officer of the Plant Protection Service; a sample copy is attached to this Decree. The consignments will also be inspected on entry by an expert of the Plant Protection Service.

The plants and parts of plants mentioned above may be allowed entry at any period of the year, if they form part of the hand luggage of a traveller, and are not intended for commercial purposes; on condition, however, that the frontier inspection has proved satisfactory.

The transit of the aforesaid plants and parts of plants and of fresh vegetables is authorized under the conditions laid down by the Decree of October 20, 1937 [see this *Bulletin*, 1938, No. 2, pp. 29-30].

All relative provisions previous to this Decree [see this *Bulletin*, 1938, No. 2, pp. 29-30; No. 6, p. 125; No. 7, 149; No. 9, pp. 193-194; 1939, No. 1, p. 5] are cancelled. (*Ämtliche Pflanzenschutzbestimmungen*, Berlin, 1. Februar 1939, Bd. XI, Nr. 1, S. 2-5).

*** By Decree of February 13, 1939, the Law of March 5, 1937 relative to the protection of cultivated plants [see this *Bulletin*, 1937, No. 7, pp. 149-150] has been extended to former Austria and the Sudeten region. (*Nachrichtenblatt für den Deutschen Pflanzenschutzdienst*, Berlin, Anfang April 1939, 19. Jahrg., Nr. 4, S. 35).

*** The new list of the communes infested by phylloxera [*Dactylosphaera vitifolia*] and those which are suspected or in danger of being contaminated is published in No. 49 (February 27, 1939) of the Official Journal (*Deutscher Reichsanzeiger und Preussischer Staatsanzeiger*). (*Ibid.*).

*** By Ministerial Order of March 3, 1939 based on the Decrees of March 28, 1929 and September 30, 1932 [see this *Bulletin*, 1929, No. 6, p. 83 and 1932, No. 12, p. 205] with view to preventing the introduction of the carnation leaf roller [*Tortrix pronubana*], imports of carnations (cut flowers) are allowed up to April 30, 1939. (*Ibid.*).

*** Ordonnance of March 31, 1939 relative to the trade in plants between Germany and former Austria, lays down that the new customs Law of March 20, 1939, having come into force on April 1, 1939, plants and any other goods which previously were only allowed to cross the frontier under certain conditions of a phytosanitary order, may, from this date, enter into Austria from Germany without any restriction. (*Ibid.*).

Germany (Protectorate of Bohemia and Moravia). — The Decree of March 21, 1939 relative to the customs system of the Protectorate of Bohemia and Moravia lays down that the regulations in force up to the present shall remain valid until further notice. (*Nachrichtenblatt für den Deutschen Pflanzenschutzdienst*, Berlin, Anfang April 1939, 19. Jahrg., Nr. 4, S. 35).

England and Wales. — With the object of preventing the introduction of the cherry fruit fly [*Rhagoletis cerasi*], the Importation of Raw Cherries Order of 1939, dated March 28, 1939, regulates the importation of cherries grown in Spain, France, Italy, Germany and Hungary during the 1939 season. (*Statutory Rules and Orders 1939, No. 376, London, 1939, 5 pp.*).

Belgium. — By Ministerial Decree of January 13, 1939, to prevent downy mildew (*Pseudoperonospora humuli*) hop fields are to be sprayed with preparations containing copper salts. The minimum is one treatment to be carried out during April and particularly when the spike-shaped shoots appear, a second treatment following the formation of the lateral shoots and a third during flowering.

The spike-shaped shoots are to be removed as soon as formed, and burnt.

In order to prevent the development and spread of aphids, contact insecticides are to be employed in controlling these insects as soon as they appear. (*Moniteur Belge, Bruxelles, 23-24 janvier 1939, 109^e année, n^{os} 23-24, p. 343*).

Chile. — Decree No. 90 of January 31, 1939 prohibits the use as seed of all wheats attacked by loose smut (*Ustilago tritici*). (*Diario Oficial de la República de Chile*, Santiago, 16 de febrero de 1939, año LXII, núm. 18. 294, págs. 564 y 565).

Belgian Congo. — Ordonnance No. 149-A. E. of November 28, 1938, regulating the export conditions for *Terminalia superba* unbarked timber, requires *inter alia* that the timber should be free from puncturing (holes or tunnelling caused by the larvae of different insects), rot, scald (special type of rot, less advanced stage), etc. (*Bulletin Administratif du Congo Belge*, Léopoldville-Kalina, 10 décembre 1938, 27^{me} année, n° 23, p. [752]-754).

Egypt. — By two Orders of February 21, 1939, *Laphygma exigua* and *Agrotis ypsilon* are declared cotton pests. (*Journal Officiel du Gouvernement Egyptien*, Le Caire, 27 février 1939, 66^{me} année, n° 21, p. 2).

* * An Order of March 22, 1939 declares *Lecanium acuminatum* a noxious pest of fruit trees.

The markaz of Zagazig is declared infested with this scale insect.

Transport, by any means, of mango trees, parts of the plant and fruits, from the infested area to any other district is prohibited. The sale or putting up for sale of plants, parts of plants and fruits attacked by the aforesaid insect is prohibited throughout the country. (*Ibid.*, 6 avril 1939, n° 35, p. 7-8).

* * By another Order of the same date, *Aulacaspis cinnamomi* var *mangiferae* is also declared harmful to fruit trees.

The markaz of Beni Mazar, moudirieh of Minieh, is declared infested with this scale insect.

Transport, by any means, of mango plants, parts of plants and fruits, from the infested area to any other part of the country, is prohibited. The sale or putting up for sale of infested plants, parts of plants and fruits is prohibited. (*Ibid.*, p. 8).

France. — A Ministerial Decree of January 12, 1939 determines the distribution among the different agricultural areas, of the importers and exporters of agricultural products of plant origin, registered for 1939 by the Phytopathological Service. (*Bulletin de l'Office de Renseignements agricoles*, Paris, 1^{er} février 1939, année 1939, n° 3, p. 58-59).

* * A Ministerial Decree of January 26, 1939 authorizes the sale and use of certain cyanide products (Zyklon B, Cyanogas A, Cyanogas G, granulated Cyanogas), to be utilized for fumigation in agriculture, the disinfection of living plants, soils, greenhouses and industrial premises, under the conditions established by the Ministerial Decree of July 20, 1938 [see this *Bulletin*, 1938, No. 12, p. 271-272]. (*Ibid.*, p. 60).

*** A second Ministerial Decree of the same date authorizes the sale and use of certain preparations (the arsenical and cupric powder A. C. F. S., 'Supremacy' brand, and cuprocalsarine) containing calcium arsenate, in the form of powder mixed with denaturants, for the treatment of potatoes under the conditions fixed by the Ministerial Decree of August 1, 1938, [see this *Bulletin*, 1938, No. 12, p. 272]. (*Ibid.*, p. 61).

*** By Law of March 6, 1939, the Minister of Agriculture, is authorized, as an exceptional measure, to grant a lump sum for each department for the purpose of assisting the farmers of those districts where the autumn and winter forage plants, which are essential for the maintenance of live-stock, were destroyed by the frosts of December, 1938, to purchase waste wheat. (*Ibid.*, 15 mars 1939, n° 6, p. [121]-122).

*** By another Law of the same date, the farmers who can prove that they purchased seed wheat from authorized cooperative associations or merchants, during the period from the December, 1938 frosts to April 20, 1939, for the purpose of re-sowing their fields damaged by the said frosts, will be allowed, as a special claim, an exemption of 22 fr. per quintal on the amount of the special resorption quota, according to the quantity of wheat purchased. (*Ibid.*, p. 122).

*** A Ministerial Decree of April 15, 1939 delimits the zones contaminated by the Colorado beetle [*Leptinotarsa decemlineata*] and the protection zones. (*Journal Officiel de la République française*, Paris, 27 avril 1939, LXXI^e année, n° 100, p. 5429-5432).

Italy. — By Ministerial Decree of February 2, 1939, the export of copper sulphate is prohibited. (*Gazzetta Ufficiale del Regno d'Italia*, Roma, 8 febbraio 1939, anno 80^o, n. 32, p. 677).

*** By Ministerial Decree of March 6, 1939 the application of the exchange duty at the reduced rate of 0.75 per cent. is extended from March 20, 1939 to the parasiticides 'Cuprital arsenicato' and 'Arsenial'. (*Ibid.*, Roma, 28 marzo 1939, n. 75, p. 1531).

*** By Ministerial Decree of March 13, 1939, the control of the bean broomrape [*Orobanche crenata*], by collecting and destroying the parasite, has been made compulsory in the Province of Ragusa. (*Bollettino Ufficiale del Ministero dell'Agricoltura e delle Foreste*, Roma, 21 aprile 1939, anno XI, n. 29, pp. 852-853).

*** By Ministerial Decree of March 15, 1939, the control of the cockchafer (*Melolontha melolontha*), by collecting and destroying the adults, has been made compulsory in the province of Belluno. (*Ibid.*, pp. 853-854).

Morocco (French Zone of). — An Order of February 2, 1939 authorizes the use of mercury salts and organic mercurial compounds for soil and seed disinfection — not for any grain or seeds employed in human and animal nutrition — and specifies the precautions to be taken. (*Bulletin Officiel*, Rabat, 10 février 1939, XXVIII^e année, n^o 1372, p. 176-177).

*** A second Order of the same date authorizes the establishment of a syndical association for the control of plant parasites to be known as the ' Association syndicale de lutte contre les parasites des plantes du Bas-Sebou '. (*Ibid.*, p. 177).

*** An Order of February 15, 1939 proposes an enquiry with regard to the establishment at the Petitjean civil control post of a syndical association for the control of plant pests, to be called the Petitjean Association. (*Ibid.* 3 mars 1939, n^o 1375, p. 241).

*** An Order of February 17, 1939 regulates the use of hydrocyanic acid gas and cyanides for the control of plant parasites. (*Ibid.*, p. 241-242).

*** An Order of February 17, 1939 authorizes the destruction of wild boars causing heavy damage to crops in the territory of the Kelâa-des Slès civil control post, Fez region. (*Ibid.*, p. 243).

*** An Order of March 10, 1939 authorizes steps with regard to the establishment of a syndical association for the control of plant pests, to be known as the ' Association syndicale de lutte contre les parasites des plantes de la vallée de l'Ouerrha '. *Ibid.*, 24 mars 1939, n^o 1378, p. 362).

*** The Vizirial Decree of March 29, 1929 (7 safar 1358) supplements the Vizirial Decree of March 17, 1936 (23 hija 1354) giving the list of pests in regard to which syndical associations for control may be set up [see this *Bulletin*, 1936, No. 8, p. 179], by adding the olive fly (*Dacus oleae*). (*Ibid.*, 28 avril 1939, n^o 1383, p. 552).

*** Four Orders of April 18, 1939 relative to the inspection of artichokes, potatoes, carrots and French beans for export prescribe, *inter alia*, that these products must be free from disease or insect attack. (*Ibid.*, 5 mai 1939, n^o 1384, p. 625-627).

Switzerland (Canton of Vaud). — An Order of February 1, 1938 regulates the sale of arsenical products or other poisonous substances for use exclusively in arboriculture, wine-growing, horticulture and agriculture (vegetables excepted). (*Recueil des lois, décrets, arrêtés et autres actes du Gouvernement du Canton de Vaud*, Lausanne, 1939, tome CXXXV, 1938, p. 39-41).

*** A Decree of May 17, 1938 abolishes, for 1938 and 1939, the landowners' tax for phylloxera insurance. (*Ibid.*, p. 145).

*** An Order of October 28, 1938 regulates: (a) the use of hydrocyanic acid gas and substances which evolve this gas, when employed for destroying rodents or insects, disinfecting property or any other object; (b) the utilization of rat poisons. (*Ibid.*, p. 177-179).

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II. La microflora della pasta-legno. Funghi. (La microflore de la pâte mécanique. Champignons. — The microflora of wood pulp. Fungi) by G. Goidànich.
III. La microflora della pasta-legno. Batteri. (La microflore de la pâte mécanique. Bactéries. — Microflora of wood pulp. Bacteria) par A. Mezzetti.
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